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No one loves the country more sincerely, or welcomes new devotees to the worship of its pure altars more warmly, than ourselves. To those who bring here hearts capable of understanding the lessons of truth and beauty, which the Good Creator has written so legibly on all his works; to those in whose nature is implanted a sentiment that interprets the tender and the loving, as well as the grand and sublime lessons of the universe, what a life full of joy, and beauty, and inspiration, is that of the country; to such,

—— "The deep recess of dusky groves,
Or forest where the deer securely roves,
The fall of waters, and the song of birds,
And hills that echo to the distant herds,
Are luxuries, excelling all the glare
The world can boast, and her chief fav'rites share."

There are those who rejoice in our Anglo-Saxon inheritance of the love of conquest, and the desire for boundless territory,—who exult in the "manifest destiny" of the race, to plant the standard of the eagle or the lion in every soil, and every zone of the earth's surface. We rejoice much more in the love of country life, the enjoyment of nature, and the taste for rural beauty, which we also inherit from our Anglo-Saxon forefathers, and to which, more than all else, they owe so many of the peculiar virtues of the race.

With us, as a people, retirement to country life, must come to be the universal pleasure of the nation. The successful statesman, professional man, merchant, trader, mechanic,—all look to it as the only way of enjoying the *otium cum dignitate;* and the great beauty and extent of our rural scenery, as well as the absence of any great national capital, with its completeness of metropolitan life, must render the country the most satisfactory place for passing a part of every man's days, who has the power of choice.

It is not to be denied, however, that "retirement to the country," which is the beau-ideal of all the busy and successful citizens of our towns, is not always found to be the elysium which it has been fondly imagined. No doubt there are good reasons why nothing in this world should afford perfect and uninterrupted happiness.

"The desire of the moth for the star"

might cease, if parks and pleasure-grounds could fill up the yearnings of human nature, so as to leave no aspirations for futurity.

But this is not our present meaning. What we would say is, that numbers are disappointed with country life, and perhaps leave it in disgust, without reason, either from mistaken views of its nature, of their own capacities for enjoying it, or a want of practical ability to govern it.

We might throw our views into a more concrete shape, perhaps, by saying that the disappointments in country life arise chiefly from two causes. The first, is from *expecting too much*. The second, from *undertaking too much*.

There are, we should judge from observation, many citizens who retire to the country, after ten or twenty years' hard service in the business and society of towns, and who carry with them the most romantic ideas of country life. They expect to pass their time in wandering over daisy spangled meadows, and by the side of meandering streams. They will listen to the singing of birds, and find a perpetual feast of enjoyment in the charm of hills and mountains. Above all, they have an *extravagant* notion of the purity and the simplicity of country life. All its intercourse, as well as all its pleasures, are to be so charmingly pure, pastoral and poetical!

What a disappointment, to find that there is *prose* even in country life,—that meadows do not give up their sweet incense, or cornfields wave their rich harvests without care,—that "work-folks" are often unfaithful, and oxen stubborn, even an hundred miles from the smoke of towns, or the intrigues of great cities.

Another, and a large class of those citizens, who expect too much in the country, are those who find, to their astonishment, that the country is *dull*. They really admire nature, and love rural life; but, though they are ashamed to confess it, they are "bored to death," and leave the country in despair.

This is a mistake which grows out of their want of knowledge of themselves, and, we may add, of human nature generally. Man is a *social*, as well as a reflective and devout being. He must have friends to share his pleasures, to sympathise in his tastes, to enjoy with him the delights of his home, or these become wearisome and insipid. COWPER has well expressed the want of this large class, and their suffering, when left wholly to themselves:—

> "I praise the Frenchman; his remark was shrewd,—
> How sweet, how passing sweet, is solitude!
> *But give me still a friend, in my retreat,*
> *Whom I may whisper—solitude is sweet.*"

The mistake made by this class, is that of thinking only of the beauty of the *scenery* where they propose to reside, and leaving out of sight the equal charms of good society. To them, the latter, both by nature and habit, is a *necessity*, not to be wholly waived for converse of "babbling brooks." And since there are numberless localities where one *may* choose a residence in a genial and agreeable country neighborhood, the remedy for this species of discontent is as plain as a pike-staff. One can scarcely expect friends to follow one into country seclusion, if one will, for the sake of the picturesque, settle on the banks of the Winipissiogee. These latter spots are for poets, artists, naturalists; men, between whom and nature there is an intimacy of a wholly different kind, and who find in the structure of a moss or the flight of a water fowl the text to a whole volume of inspiration.

The third class of the disappointed, consists of those who are astonished at the *cost* of life in the country. They left town not only for the healthful breezes of the hill-tops, but also to make a small income do the business of a large one. To their great surprise, they find the country *dear*. Everything they grow on their land costs them as much as when bought, (because they produce it with *hired* labor;) and everything they do to improve their estate, calls for a mint of money, because with us labor is always costly. But, in fact, the great secret of the matter is this; they

have brought as many as possible of their town habits into the country, and find that a moderate income, applied in this way, gives less here than in town. To live economically in the country, one must adopt the rustic habits of country life. Labor must be understood, closely watched, and even shared, to give the farm products at a cost likely to increase the income; and *patés de foie gras*, or *perigord pies*, must be given up for boiled mutton and turnips. (And, between them and us, it is not so difficult as might be imagined, when the mistress of the house is a woman of genius, to give as refined an expression to country life with the latter as the former. The *way* of doing things is, in these matters, as important as the means.)

Now a word or two, touching the second source of evil in country life,—undertaking too much.

There is, apparently, as much fascination in the idea of a large landed estate as in the eye of a serpent. Notwithstanding our institutions, our habits, above all the continual distribution of our fortunes, everything, in short, teaching us so plainly the folly of improving large landed estates, human nature and the love of distinction, every now and then, triumph over all. What a homily might there not be written on the extravagance of Americans! We can point at once to half a dozen examples of country residences, that have cost between one and two hundred thousand dollars; and every one of which either already has been, or soon will be, enjoyed by others than those who constructed them. This is the great and glaring mistake of our wealthy men, ambitious of taste,—that of supposing that only by large places and great expenditures can the problem of rural beauty and enjoyment be solved. The truth is, that with us, a large fortune does not and cannot (at least, at the present time,) produce the increased enjoyment which it does abroad. Large estates, large houses, large establishments, only make slaves of their possessors; for the service, to be done daily by those who must hold aloft this dazzling canopy of wealth, is so indifferently performed, servants are so time-serving and unworthy in this country, where intelligent labor finds independent channels for itself, that the lord of the manor finds his life overburdened with the drudgery of watching his drudges.

Hence, the true philosophy of living in America, is to be found in moderate desires, a moderate establishment, and moderate expenditures. We have seen so many more examples of success in those of even less than moderate size, that we had almost said, with Cowley,—"a little cheerful house, a little company, and a very little feast."

But among those who undertake too much, by far the largest class is that whose members do so through *ignorance* of what is to be done.

Although the world is pretty well aware of the existence of professional builders and planters, still the majority of those who build and plant, in this country, do it without the advice of experienced persons. There is, apparently, a latent conviction at the bottom of every man's heart, that he can build a villa or a cottage, and lay out its grounds in a more perfect, or, at least, a *much more* satisfactory manner than any of his predecessors or contemporaries. Fatal delusion! One may plead his own case in law, or even write a lay sermon, like Sir Walter Scott, with more chance of success than he will have in realizing, in solid walls, the *perfect model* of beauty and convenience that floats dimly in his head. We mean this to apply chiefly to the production as a work of art.

As a matter of economy, it is still worse. If the improver selects an experienced architect, and contracts with a responsible and trustworthy builder, he knows within 20 per cent., at the farthest, of what his edifice will cost. If he undertakes to play the amateur, and corrects and revises his work, as most amateurs do, while the house is in progress, he will have the mortification of paying twice as much as he should have done, without any just satisfaction at last.

What is the result of this course of proceeding of the new resident in the country? That he has obtained a large and showy house, of which, if he is alive to improvement, he will live to regret the bad taste; and that he has laid the foundation of expenditures far beyond his income.

He finds himself now in a dilemma, of which there are two horns. One of them is the necessity of laying out and keeping up large pleasure-grounds, gardens, &c., to correspond to the style and character of his house. The other is to allow the house to remain in the midst of beggarly surroundings of meadow and stubble; or, at the most, with half executed and miserably kept grounds on every side of it.

Nothing can be more unsatisfactory than either of these positions. If he is seduced into expenditures *en grand seigneur*, to keep up the style in which the mansion or villa has been erected, he finds that instead of the peace of mind and enjoyment which he expected to find in the country, he is perpetually nervous about the tight place in his income,—constantly obliged to make an effort to maintain that which, when maintained, gives no more real pleasure than a residence on a small scale.

If, on the other hand, he stops short, like a prudent man, at the mighty show of figures at the bottom of the builder's accounts, and leaves all about in a crude and unfinished condition, then he has the mortification, if possessed of the least taste, of knowing that all the grace with which he meant to surround his country home, has eluded his grasp; that he lives in the house of a noble, set in the fields of a sluggard. This he feels the more keenly, after a walk over the grounds of some wiser or more fortunate neighbor, who has been able to sweep the whole circle of taste, and, better advised, has realized precisely that which has escaped the reach of our unfortunate improver. Is it any marvel that the latter should find himself disappointed in the pleasures of a country life?

Do we thus portray the mistakes of country life in order to dissuade persons from retiring? Far from it. There is no one who would more willingly exhibit its charms in the most glowing colours. But we would not lure the traveller into an Arcadia, without telling him that there are not only golden fruits, but also others, which may prove sodom-apples if ignorantly plucked. We would not hang garlands of flowers over dangerous pits and fearful chasms. It is rather our duty and pleasure loudly to warn those who are likely to fall into such errors, and to open their eyes to the danger that lies in their paths; for the country is really full of interest to those who are fitted to understand it; nature is full of beauty to those who approach her simply and devoutly; and rural life is full of pure and happy influences, to those who are wise enough rightly to accept and enjoy them.

What most retired citizens need, in country life, are objects of real interest, society, occupation.

We place first, something of permanent interest; for, after all, this is the great desideratum. All men, with the fresh breath of the hay-fields of boyhood floating

through their memory, fancy that *farming* itself is the grand occupation and panacea of country life. This is a profound error. There is no *permanent* interest in any pursuit which we are not successful in; and farming, at least in the older states, is an art as difficult as navigation. We mean by this—*profitable* farming, for there is no constant satisfaction in any other; and though some of the best farmers in the Union are retired citizens, yet not more than one in twenty succeeds in making his land productive. It is well enough, therefore, for the citizen about retiring, to look upon this resource with a little diffidence.

If our novice is fond of horticulture, there is some hope for him. In the first place, if he pursues it as an amusement, it is inexhaustible, because there is no end to new fruits and flowers, or to the combinations which he may produce by their aid. And besides this, he need not draw heavily on his banker, or purchase a whole township, to attain his object. Only grant a downright taste for fruits and flowers, and a man may have occupation and amusement for years, in an hundred feet square of good soil.

Among the happiest men in the country, as we have hinted, are those who find an intense pleasure in nature, either as artists or naturalists. To such men, there is no weariness; and they should choose a country residence not so much with a view to what can be made by improving it, as to *where* it is, what grand and beautiful scenery surrounds it, and how much inspiration its neighborhood will offer them.

Men of society, as we have already said, should, in settling in the country, never let go the cord that binds them to their fellows. A suburban country-life will most nearly meet their requirements; or, at least, they should select a site where some friends of congenial minds have already made a social sunshine in the "wilderness of woods and forests."

Above all, we should counsel all persons not to *underrate* the cost of building and improving in the country. Do not imagine that a villa, or even a cottage ornée, takes care of itself. If you wish for rural beauty, at a cheap rate, either on the grand or the moderate scale, choose a spot where the two features of home scenery are trees and grass. You may have five hundred acres of natural park—that is to say, fine old woods, tastefully opened, and threaded with walks and drives, for less cost, in preparation and annual outlay, than it will require to maintain five acres of artificial pleasure-grounds. A pretty little natural glen, filled with old trees, and made alive by a clear perennial stream, is often a cheaper and more unwearying source of enjoyment than the gayest flower garden. Not that we mean to disparage beautiful parks, pleasure-grounds, or flower gardens; we only wish our readers, about settling in the country, to understand that they do not constitute the highest and most expressive kind of rural beauty,—as they certainly do the most *expensive.*

It is so hard to be content with simplicity! Why, we have seen thousands expended on a few acres of ground, and the result was, after all, only a showy villa, a greenhouse, and a flower garden,—not half so captivating to the man of true taste as a cottage embosomed in shrubbery, a little park filled with a few fine trees, a lawn kept short by a flock of favorite sheep, and a knot of flowers woven gaily together in the green turf of the terrace under the parlor windows. But the man of wealth so loves to astonish the admiring world by the display of riches, and it is so rare to find those who comprehend the charm of grace and beauty in their simple dress!

EXPERIMENTAL FRUIT CULTURE.

BY T. G. YEOMANS, WALWORTH, N. Y.

I HAVE, from the commencement, been an attentive reader of the Horticulturist, and most especially interested in such portions of it as relate to the cultivation of trees, and choice fruits.

I propose to occupy the attention of your readers, a few moments, with some account of my experience, during the last three years, in enriching the soil and growing trees.

In September, 1845, I purchased a piece of ground, from which had been cut a crop of wheat in July of that year; the land had never been manured—the soil a strong loam. During the same autumn, I drew on to 15 acres of this land, about 450 wagon loads of swamp muck, leaving it in piles of one load each. I then drew from an old ashery as many loads of leached ashes,—putting a load of ashes on every load of muck.

I then spread the whole evenly over the ground, and ploughed it pretty deeply, though not with a subsoil plough. I next proceeded to plant about 700 apple and peach trees on seven acres of the ground, setting half of each, and alternately in the rows each way, and twenty feet from each other; about 500 were set in November, and 200 in April following. In planting the trees, I prepared the places large enough to receive the trees properly, and then procured and placed by each hole thus prepared one shovelfull of swamp muck, one of leached ashes, and one of fine charcoal dust; these I mixed well with fine mould, or surface soil, and with this mixture planted the trees.

The trees, thus planted in the fall, were "shortened-in" about March, cutting away half or two-thirds of the [terminal growth of the] branches; and the 200, set in the spring, were shortened in the same manner when set. Of the 500 trees thus planted in the fall, 6 or 7 died the first winter; and they were set in the wettest part of the ground; and to the wet and freezing weather, without the usual quantity of snow, I attribute their loss. With this slight exception they all grew finely; some of the peach trees forming branches the first year four feet in length. There was no perceptible difference between those planted in the fall and spring.

Of this seven acres of ground, thus planted to orchard, I planted about six acres in the spring to nursery trees, such as apples, grafted in the root, peach pits, apple seeds, cherry and pear stocks; and a portion of the balance I planted with beets and carrots. The beets and carrots were well hoed till they covered the ground sufficiently to keep the weeds down. The nursery planted on the six acres, was kept well worked during the whole season with plough, cultivator and hoe. The orchard trees on the nursery ground grew more than twice as much the first season as on the ground planted to beets and carrots; and this difference I attribute—not to the beets and carrots, drawing more from the soil than the young trees, as many supposed—but to the difference in the manner of cultivating them, and the continued cultivation of the nursery trees till fall.

And this conclusion will be made more clear, by stating that the row of beets and carrots adjoining the nursery trees, and be-

tween which and the trees the plough and cultivator were used, were more than twice as large as those in any other row. This result convinced me fully of the great importance of *frequent*, *thorough*, and *deep* cultivation.

The second year, (1847,) I planted the ground on which the beets and carrots grew, to corn, leaving an open space about each tree equal to eight hills of corn, which I planted to potatoes. The trees did tolerably well, but did not grow more than those in the nursery grew the first year. This year, 1848, I sowed to oats the same corn ground, keeping a spot about three feet in diameter hoed about each tree till the oats came off; this year the trees grew less than last, and are not now much larger than those in the nursery ground were at the end of one year from the time of planting.

The orchard trees planted on the nursery ground have grown very rapidly, and produced, this autumn, about thirty or forty bushels choice peaches; and the nursery trees have grown well. I may also remark, respecting the nursery peach trees, that in taking them up (and I have taken up more than 25,000 of them,) I think that not one in a hundred appear to have been touched by the peach worm, while, on similar land in this immediate vicinity, to which ashes has not been applied, a very large portion of young peach trees are very much injured, and many entirely destroyed by the worm.

My orchard peach trees on that ground have also entirely escaped the worm, while, on other parts of my ground, my trees are much injured by them.

A portion of the 15 acres enriched with muck and ashes, was sowed to barley in 1846, and produced a large crop. It was again sowed to wheat in the fall of 1846, and produced 30 bushels per acre. This year, 1848, I planted four acres of the wheat ground, to corn; about one acre of which was ploughed last fall with a subsoil plough, and the four acres yielded, on an average, 179 bushels of ears of sound corn per acre. That part which had been subsoiled was considerably the best.

The peaches grown on my trees in my nursery grounds, among the small trees, were about a week later in ripening than the same varieties in my garden, where the ground was more fully exposed to the sun. Respectfully,

T. G. Yeomans.

Walworth, Nov. 13, 1848.

PEAR BLIGHT.

BY J. W. BISSELL, ROCHESTER, N. Y.

It is much easier to doubt the opinions or reasons of others, than to give better; it is easier to say that the pear blight, known here as the fire-blight, is not caused by frozen sap, than to give the cause.

This blight has been very destructive the past summer, in some sections of this city and vicinity, while others have entirely escaped. Scarcely any trees lying north of a line parallel with the main street of the city, and about half of a mile distant therefrom, have been attacked this year, while south of that line, on all soils, it has carried dismay to the hearts of many cultivators and amateurs. Several years since, that district which is now exempt, was se-

verely scourged. I have this year lost more than one hundred and fifty fine standards, part on quince and part on pear stocks, out of about eight hundred; and some of my neighbors have suffered in greater proportion. Some of these trees belonged to the nursery, and were set among young cherry trees, so that the sun could, neither in winter or summer, have had any effect upon them. The trees were as well shaded this summer as if they had been sheathed with straw, (as recommended by one of your correspondents,) and the ground had been well mulched, so that the supply of moisture at the roots was uniform. Some of them grew finely, others not at all; yet, a common fate awaited them—one was taken, and another left. Perhaps this was caused by frozen sap in immature wood, although it was apparently well matured. But the losses in another lot, composed of six hundred fine imported dwarfs, which were set in May last, and which were shipped from Paris on the 27th day of February, must be attributed to some other cause; for I understand this disease to be American, and not known in France. Their growth in the nursery where they were raised, had not been rank; the wood was apparently well matured, and most of that made last year was cut off. They were set 8 feet apart for specimen trees, and summer pruned by pinching off the leaders. I examined them carefully two or three times each week during the summer, and immediately cut off at the ground, or pulled up, every one showing the least blight. During July and August, the disease commenced in the succulent wood of this year, and extended downwards; in September and October it attacked the bodies of the trees, and could not be perceived in the branches either externally or internally. By much experience, and without cutting, I could discern that some trees were entirely ruined, when most persons would have said that they were in perfect health. There was a peculiar appearance in the bark that showed all was not right, and an incision would always confirm it. In all cases the sap and bark smelled very sour; so much so, that many times, in walking among the trees, I have discovered by the odor that some new one was affected, and had merely to follow my nose to find it. Sometimes this odor was perceptible at a distance of twenty feet or more.*

In two rows of these same imported dwarfs, containing fifty trees each, and set about one foot apart in the row where the affected trees were not removed, every one blighted. From another row, similarly planted, where each one was dug up as soon as it became diseased, we lost but few. Yet Mr. Hooker has in vain tried to affect healthy trees by inoculating them with buds and sap from some of the worst cases. Is it infectious, and not contagious?

I send you part of the body and branches of a White Doyenné tree, about eight years old, which has borne fruit three years, and this year a fine crop of as beautiful specimens as you ever saw. It has grown but moderately. Last year the season was dry; consequently the shoots were short and ripened early. This year it made a fair quantity of wood, all of which was cut in August for buds. The fruit was picked the last of September. A few days afterwards, I noticed one morning that a dormant bud had started on the body of the tree, at a point marked X. This I pinched off, and examined the tree very carefully by cutting through the bark, because the starting of this bud had surprised me; but I found all in a natural condition. In three hours af-

* When the trunk is attacked, it can often be *seen* from as great a distance, and before a single leaf hangs out a signal of distress.

terwards the tree was blighted entirely around the body, and for some distance above and below where this bud had started. Was this frozen sap?

I should explain to you that the bark is now discolored by a composition of nitre, copperas and potash, that we applied to it. One morning a small spur on the *north* side of, and on the trunk of a Madeleine tree, about the same size as this Doyenné, was discovered to be blighted. In the afternoon the blight had extended about three inches above and below this spur. The next day it progressed about as much farther; it was several days before it extended around the tree, so as to reach the south side. The top is not yet affected, except by loss of sap from this girdling. A Julienne was affected precisely in the same way. Were these caused by frozen sap? If yes, why should it all be deposited in a diminutive spur, while a vigorous top escapes?

Among other dwarf trees, planted in the spring of 1847, was one White Doyenné, with so few roots that it needed to be staked to keep from falling down by its own weight. With much care it barely lived, but it did not make the least wood. This year it bore three beautiful pears; and after they were picked, it blighted dead,—perhaps from grief, certainly not from frozen sap in young wood. I would furnish you many more cases, but it makes me feel too sad when I think about them. Mr. Hovey said he should put on mourning if his standards thus died.

All these trees stood upon a knoll of sandy loam, with like subsoil, in some places rich, in others not; in some places specially manured, in others not. Throughout the whole, both soil and subsoil are well drained, and no pear root was ever suspected of penetrating as deep as it is necessary to dig there to find water.

I do not believe that frozen sap has spoiled any of our trees; neither do I adopt any other theory.

The wash mentioned as having been applied to trees, sometimes had a good effect. It always stopped the musty, vinegar smell, and generally arrested the blight—sometimes only for a short time; in other cases the trees would die in spite of all our doses. The idea of applying it was suggested by the fact that the disease appeared to be located between the epidermis and liber, and not in the cambium. It was often stopped by shaving off the outer bark as far as any discolored matter could be seen; and this discoloring could always be traced farther in the outer bark than the inner. In other cases, this shaving produced no effect.

We keep a journal of all such matters; and I hope, next season, to send you the result of several experiments connected with this and other subjects. J. W. Bissell.

Rochester, Nov., 1848.

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Remarks.—We thank Mr. Bissell for these interesting facts, which he has laid before us.

His observations would seem to prove that the disease, as known upon his grounds, did not arise from frozen sap.

Our readers who have pursued this subject, as treated in this magazine, will have noticed that we are convinced that the two most disastrous forms of pear blight arise from frost in winter, (frozen sap,) and from the sudden effects of the sun's rays in summer, after a shower, (sun-blight.)

We have satisfied ourselves, we repeat, that malignant pear tree blight originates in these two modes; but, as Mr. Bissell, Dr. Wendell, and other correspondents have shown, they are not sufficient to account for the rapid and singular mortality, which sometimes occurs in pear plantations affected by this disease.

The array of facts now presented, regarding this malady, seem to leave scarcely a doubt that malignant pear blight is an *infectious* disease.

We observe that European physiologists have decided that a certain class of vegetable diseases are infectious. "The diseased cells of a vegetable are capable of communicating their diseased action to healthy cells, just as the cells from an animal, affected with the small pox, are capable of giving that disease to another."

It has also been ascertained that "in order that disease may be thus produced, it is not necessary that the contagious matter be conveyed from one plant to another in a tangible form; *but the diseased cells may be conveyed through the medium of the air.*"

Certain conditions of the atmosphere, as well as of the plants themselves, favor the development and spread of these epidemic diseases. Only a portion of the individual plants exposed will suffer,—some escaping, as among animals. And, like epidemic diseases among animals, it is rarely the case that diseases of this kind occur largely in the same districts in successive years.

Taking this view of the matter, the presence of a single tree, in Mr. BISSELL's grounds, thoroughly diseased with infectious blight, would be sufficient to spread the disease among his whole plantation, provided, as appears to have been the case, the condition of the atmosphere and of the trees were such as to facilitate its extension through the air.

The sudden appearance of this blight in healthy trees, and its rapid extension among trees which themselves had not, as our correspondent thinks, been exposed to any causes which would originate the blight, force us to look for an explanation in the *infectious* character of the disease.

The check given to its extension in the row of trees, where the diseased branches were cut out as fast as the symptoms appeared, compared with the other row where it was left to itself, seems to be a strong argument in favor of the infectious character of the disease. And, in the absence of any known specific, it is plain that close watching, with the constant removal and destruction of diseased branches, is as yet the most successful mode of checking its ravages.

We hope Mr. BISSELL will pursue his experiments with the disinfecting wash, and give us the results another season.

We will only remark, in conclusion, that the pear blight, (as we learn from a cultivator now abroad, who is familiar with the disease at home,) is common in the south of Europe, though, as in many parts of this country, it does not assume the highly malignant form which it sometimes takes in this country. ED.

LEAVES AND ROOTS—THEIR FUNCTIONS AND STRUCTURE.

BY DR. JAMES PAUL, TRENTON, N. J.

To the practical and scientific cultivator, a knowledge of the organs of plants, their uses and functions, must not only be highly interesting, but most important. When we look at a plant, no matter how minute and delicate, or how gigantic and magnificent its proportions, we behold a thing endowed with life, in which are various organs necessary to the sustentation and production of its several parts. Let us, for the pre-

sent, consider the structure and functions of those organs which more immediately call for observation, i. e., the leaves and roots; as it is in these that the most important changes take place, by means of which the produce of the plant is perfected, and upon which the agriculturist must bestow his attention, that he may reap his due reward.

The functions of the leaves are intricate and not easily understood. They are composed of numerous vessels, reticulated and interwoven, one with another—of cellular tissue, which fills up the intervening spaces—of a membranous covering—which, on the upper surface, allows of *transpiration*, which in plants may be compared to the insensible perspiration of the surface, and the humidity exhaled from the lungs of animals; and on the under surface, *stomata* or reservoirs, for the reception of certain gases which are contained in the atmosphere. Here, then, we shall find a most important part of the vegetable economy taking place; here the sap of the plant is elaborated into the proper juices, the absolute article which that plant is to yield. Hence we can understand why the vigor of a plant depends upon the healthy green state and luxuriance of its leaves; and hence we can understand why a plant, having its leaves destroyed or eaten off, as soon as they are unfolded, cannot be expected to yield fruit in the following season.

Let us enter farther into the structure of the leaves. It must be plain, that if such important ends are to be gained in the leaves, we must expect an organization of a complex order. Yet, the subject admits of elucidation; and a few observations may divest it of much of its complexity.

It is not unlikely that the circulation of the sap in the leaf, may be compared to the capillary system in animals; and that while some of the ascending vessels terminate in the returning vessels, yet that much of the juices are transferred from one to the other by inhibition. I have said that the leaf is composed of numerous vessels, interwoven through each other. Hence you will bear in mind that there are two sets of vessels here intermixed; the one, containing the sap which has ascended from the roots; the other, those which are to convey away that sap after it has been elaborated into the proper juice of the plant. It is in the leaves that the product of the plant is formed, that the ascending sap is elaborated or assimilated into the proper juice of the plant; and this is effected by the combined action of light, the solar ray, and the atmosphere,—affording a beautiful example of the wonderful and most effectual works of nature, a chemical laboratory in the minutest leaf, exceeding in beauty and design the most elaborate and ingenious of the works of art. Thus, to form our compound in the leaves, we derive the water, and inorganic constituents of plants, from the soil—the carbon and the nitrogen from the atmosphere.

The carbonic acid of the atmosphere is supposed to amount to, from a 1000th to 2000th part of its bulk. The atmosphere being composed of four parts of nitrogen and one part of oxygen,—having the small portion of carbonic acid gas already stated; carbonic acid gas, as the reader is no doubt aware, being a compound of one part of carbon to two parts of oxygen. Now the *stomata* or pores on the leaf, being open, inhale or receive the carbonic acid of the atmosphere; and as it is a peculiar property of the solar ray, acting upon green vegetable matter, to decompose carbonic acid gas, this chemical decomposition is effected in the *stomata*, the carbon permeates the sides of the vessels, is taken into,

and combines with the juices already there, while the oxygen is liberated in a free state.

Now carbon is the *absolutely necessary* ingredient required for the growth and substance of plants. It is that, in fact, which forms the *lignin*, or greatest portion of the wood, which, when burnt and divested of its extraneous matter, is carbon in its solid state. But we are now speaking of carbon in its *gaseous form*, which however is never formed, and cannot be realized pure, or in a free state; but always joined with some other gas or substance: thus, while floating in the atmosphere, it is in the form of carbonic acid gas. You are aware that this gas is most noxious and detrimental to animal life, and, but for this wise provision of nature, would accumulate in such quantities as to depopulate the world. But Almighty God, the great ruler of the universe, has ordained that this deleterious compound should be the very food and substance of every tree of the forest, and the grass which clothes the fields. In many of the natural processes of this life, and in decomposition after death, this gas is generated. When we breathe, we inhale an atmosphere of oxygen and nitrogen, with a very small proportion, as already stated, of carbonic acid gas; but we expire an air loaded with it. The act of combustion is to generate carbonic acid gas. Fermentation and decomposition, or putrefaction, all generate this noxious gas. Nay, the generating of this gas exists in the very act, whether of germination, vegetation, combustion, fermentation, or putrefaction. If, then, this gas, so destructive to the animal economy, is generated in such quantities, that if some means were not at hand to again resolve it into its elements, it would render the globe uninhabitable, it is gratifying to know that those means are at hand, in every leaf which is exposed to the surrounding atmosphere. Light and sunshine are the two great influences which act on vegetable matter, in restoring to a proper state a deteriorated atmosphere; the former having the peculiar faculty of giving the green colour to vegetable matter; and the latter, by its influence on geen vegetable matter, in decomposing carbonic acid gas,—the carbon being retained, and the oxygen set free. You are, of course, aware that oxygen is the grand supporter of animal life; without its aid and application, animal life would quickly become extinct. It is the supporter of combustion; and its presence is required in the germination of seeds, and the vegetation of plants.

The leaves, then, are the organs of assimilation. In them the sap, having in solution the inorganic constituents of the plant derived from the soil, and deriving the carbon, which has been retained in the stomata, from the atmosphere, as also its nitrogen, elaborated now into the proper juices of the plant, returns through the descending vessels, on the inner side of the bark to the root.

On the subject of the carbon being derived from the atmosphere, Prof. Liebig says—"It is not denied that manure exercises an influence upon the development of plants; but it may be affirmed, with positive certainty, that it neither serves for the production of carbon, nor has any influence upon it, because we find that the quantity of carbon produced by manured lands is not greater than that yielded by lands which are not manured. The discussion as to the manner in which manure acts has nothing to do with the present question, which is, *the origin of carbon.* The carbon must be derived from other sources; and as the soil does not yield it, it can only be extracted from the atmosphere."

Relative to the nitrogen of plants, Prof. LIEBIG states—"Plants, and consequently animals, must therefore derive their nitrogen from the atmosphere." And again, he says—"Nitrogen is found in *lichens* which grow on basaltic rocks. Our fields produce more of it than we have given them as manure; and it exists in all kinds of soils and minerals which were never in contact with organic substances. The nitrogen in these cases could only have been extracted from the atmosphere." "No conclusion can, then, have a better foundation than this, that it is the ammonia of the atmosphere which furnishes nitrogen to plants."

I have already said, that the stomata of the leaves, as it were, *inhale* the carbonic acid gas of the atmosphere, where it undergoes decomposition, retaining the carbon, and, as it were, *exhaling* the oxygen. This, by the older physiologists, was compared to the breathing of animals. Hence, the leaves were termed the lungs of plants, the organs of breathing, or of respiration.

Let us now turn our attention to the roots of plants. The true roots of plants are the radiculæ, or fimbriæ,—the rootlets, striking out at all points from the stem and branches which lie under the earth. It is necessary to understand the organization of the rootlets,—in my opinion, very important organs to the proper growth of plants. If we make a longitudinal section of the rootlet, to the point where it is given off from the root, and continue the section through the branch of the root, (the most simple and easy of demonstrations is the carrot,) we shall see, that while the outer coat of the rootlet is given off from the external coat of the root, there is a vessel running from the extreme point, or *spongiole*, along the center of the rootlet, continuing its course entirely through the bark, until it meets the ascending vessels, through which the sap arises into the plant. The root appears to act to the maturer plant, in some measure, and in a similar manner, as the seed-lobes, or cotyledons, to the young plant. The seed-lobes, you are aware, contain an immensity of vegetable matter of the nature of starch, which, being converted into dextrine by the peculiar chemical change, effected in the process of germination and vegetation, by the diastase contained in the germ, and serves for the nourishment of the young plant until its organs are so developed as to procure its food elsewhere.

I have made use of the term *diastase*. As that word is not yet in common use, it may be well for me briefly to explain it. *Diastase* is a peculiar nitrogenised compound, contained in the germ of seeds, which, upon the application of heat, moisture, and atmospheric air, commences a ferment, converting the starch of the seed into a gummy substance called dextrine,—the true sap of the plants. It is the chemical change which takes place in malting, converting the simple nutriment of the barley into that which, on being brewed, affords the nourishing, though intoxicating beverage of ale or porter; or, when distilled, affords ardent spirits. This power, called, in chemistry, *catalysis*, may be further illustrated by the leaven used in baking, which is known to every good housekeeper, as "a little leaven leaveneth the whole lump."

Now the roots contain an immensity of the proper juices of the plant; nay, the proper juice is here in its most concentrated or inspissated state; for, if we examine a plant, we shall find that while its proper juice is mild in the leaves, it is stronger in the twigs and branches—stronger still in the bark of the trunk,—but still more concentrated in the root. Now, it is by the

combined action of moisture, heat and oxygen, *upon the germ*, that the vitality of the plant is excited. Moisture is absorbed, and carbonic acid gas is generated, the *plumula* puts forth its tiny leaves, and the radicle elongates and penetrates the earth. That the oxygen of the atmosphere is the prime mover in this action, which, in this process, is called germination, is abundantly testified by the fact, that seeds will not germinate without its presence, and that the very act of germination is accompanied with the generation of carbonic acid gas. The moisture supplied takes up that portion of the starch which has undergone the chemical change; and a preparation of a seed in this state, will show that the duct or vessel into which the nourishment, so prepared, enters, leads directly into the plumula or evolving leaves of the young plant. Now, a process somewhat similar takes place with the root and rootlets of a plant. To excite vegetation, moisture, heat, and oxygen are required; and vegetation is accompanied with the same act of generating carbonic acid gas. You will bear in mind that the vessel, in the centre of the rootlet, does not only run the whole length of the rootlet, but penetrates transversely through the bark, and joins the inner or ascending sap vessels. It therefore appears that the following process goes on: The concentrated juice, contained in the root, is in the rootlet subjected to the influence and action of the oxygen of the atmospheric air, and water, contained in and permeating the soil. A portion of the moisture is imbibed through the coats of the vessels, and dilutes the juice contained in them; and, being forced through the internal coat, by *endosmose*, into the internal or ascending vessels, it meets and mixes with the water taken up by the spongioles, holding in solution the various alkaline and siliceous compounds necessary for the inorganic structure of the plant. This mixture, constituting the true sap, ascends by the force of endosmose and capillary attraction, and is thus capable of forming the new leaves, the wood, the flowers, and the fruit of the plant.

Let me explain, to those unacquainted with the term, the meaning of *endosmose*. It has been long known that no gas or particular air can be confined by animal texture; and that if a bladder is filled with any gas, it cannot be kept pure for any length of time; that which is within escapes through the coats of the bladder, and that which is without will get in, and vice versa, according to fixed and known laws. Now it has been found that fluids are possessed of similar powers, and governed by similar laws, acting in this manner on membrane of either animal or vegetable structure, alike,—the lighter fluid forcing itself through the integument, and mixing with or passing that of greater density; and after water, a gummy solution ranks first in endosmodic power. Now, as the juice in the roots abounds in gum, it follows that water imbibed through the external coat of the rootlet, and diluting the proper juice into their mucilage, the solution is forced by endosmose into the inner vessel, and ascends by that force and capillary attraction. It is on this principle we account for the ascent of the sap, and on no other, in my opinion, can the theory of vegetation, the development of the plant, and production of its woody fibre, be explained.

Assuming, then, that all the carbon of the plant is derived from the atmosphere, and that a quantity of this constituent is required, not only for the due evolving of the leaves and wood, but for their subsequent nourishment, it follows that a certain portion of this necessary ingredient must

be contained in the ascending sap; and if so, it is also evident that it must be carried into the ascending sap vessels by means of the centre vessel, which I have already described, as running the whole course of the rootlet, and traversing the thickness of the bark of the root, until it joins the before mentioned ascending vessels. The external coat of the rootlet is, as I have already stated, given off from the external coat of the root, and, consequently, the proper juice of the plant in the root, and given into the rootlet, is, in the latter, exposed to the action of the atmospheric air and the water contained in the soil; and thus, having been modified and diluted, it enters the centre vessel in a fit state for the due nourishment of the plant.

In confirmation of these views, I may call to your recollection the phenomenon exhibited by a grafted tree. Here we see on the same stock a variety of fruit. Now, on what does this depend? The answer will be, on the scion, or bud, introduced. True, it is so; in that scion or bud is contained the germ of young leaves: these, by the nourishment supplied, are evolved, and then commences, according to *the character of the leaf*, the elaboration of the proper juice which is to produce that *particular variety* of fruit. The fact, also observed by florists, and mentioned by a celebrated culturist in Philadelphia, of the loss sustained by cutting off the young branches, containing the buds and flowers of camellias, causing the rootlets to die,—showing that certain rootlets depend upon certain branches or leaves, which, having been cut off, the rootlet dies, as being of no further use. This is an important and interesting truth. Again, let us look to the fact of the maple affording its sugar from the concentrated juice of the former year, and giving it out whenever the sap begins to ascend, and before any leaf has yet appeared. At the same time, it is known that if the tree is bled too much, it destroys the luxuriance of the vegetation for that season. Again, let us watch the progress of the young fruit tree. Deriving the nourishment required, in the first place, from the immense accumulation of vegetable matter in the cotyledons, the root of the young plant thrusts itself into the earth, and the young leaves unfold themselves to the atmosphere. Year after year crops of leaves succeed each other,—each leaf performing the important function assigned to it, of assimilating a portion of the sap in the progress of its circulation into the proper juice of the plant, which, when done, it dies and falls to its mother earth. Season after season our plant gains strength; its leaves are thrown out stronger and larger, and, in due time, the tree is capable of yielding fruit. With the first appearance of the leaves of the following season, the plant is decked with flowers, succeeded by fruit. This is the progress of a tree, from its first germination to maturity. Here we see the great importance of the leaves, in maintaining the plant. If our plant is puny, its branches slender, and its leaves wanting in luxuriance, we cannot look for fruit; and in this case, what is our remedy? We apply the pruning knife; and thus, by concentrating the ascending sap, instead of being distributed over a large surface through many long branches, we give energy to the plant, and leaves and flowers burst forth in great luxuriance.*

*It is on this principle that Dr. KLOTSCHS attempts the cure of the potato disease,—"to pinch off about half an inch from the top of the plant, when it has reached a height of six or nine inches, and to repeat the same operation 10–11 weeks after the time of planting, on all the stems of the plant." By this operation, the carbon of the plant is not again expended in the production of new stems and fruit, but is thrown into the tubers, producing potatoes of firmer texture, and more concentrated material.

You are, of course, aware that all plants are formed of organic and inorganic constituents. The organic are the woody fibre and the juices of the plant. The inorganic, the earthy and alkaline substances found there, viz., potash, soda, silica, &c. The organic constituents can all be resolved into the following elementary substances, namely: carbon, hydrogen, nitrogen, and oxygen. Now we have seen that the carbon and nitrogen have been derived from the atmosphere. The hydrogen and oxygen, the constituents of water, are, of course, derived from the rain which percolates through the earth. The inorganic are also taken from the earth. It is evident, then, that the inorganic constituents must be found there; and if they are not there naturally, they must be supplied. This is the true theory of manuring, viz., to enrich the earth so that it may be buoyant and loose; that atmospheric air may permeate, and the rain percolate through it, allowing the rootlets free access to every part, and to supply the inorganic constituents required. Hence we see the great advantage to be gained by the admixture of any buoyant substance, such as muck, bog or humus, stable litter, or other light manure; lime, ashes, and other compounds containing ammoniacal, and other salts and silicates.

I shall not, however, consume your time with entering into this subject farther. I have attempted, in the observations I have made, to elucidate the great importance of the leaves and the rootlets of a plant, as the organs necessary for its proper development, and the maturing of its productions. To allow the leaves to perform their functions in a proper manner, light, sunshine, and atmospheric air, are required, and ought freely to be admitted; and to allow the rootlets to perform theirs, heat, moisture, and atmospheric air, are indispensable. Whatever tends to deprive the leaf of light, retards it assuming its proper colour; and without colour, the solar ray loses its effect, and the plant wants vigor. Strip a plant of its leaves, and prevent their further development, and it will die. So, in like manner, unless the rootlets enjoy freedom of extension, a sufficient supply of moisture, and atmospheric air, the plant will droop and wither. Deprive it of its rootlets, and it will die. These are points, no doubt, familiarly known to all; but they are, nevertheless, worthy of the very greatest attention. JAMES PAUL.

Trenton, N. J., 1848.

HIGH CULTIVATION OF NATIVE GRAPES.

BY AN AMATEUR, NEW-YORK.

I THINK very few of the thousands who now cultivate the Isabella and Catawba grapes, in the middle states, are aware how much the size and quality of the fruit is improved by high culture.

The deep and rich borders, always prepared for vineries of foreign grapes, your readers are familiar with; and the magnificent growth of wood, and enormous clusters of grapes, that are obtained by using such stimulants. I think equally satisfactory results may be obtained by making deeply prepared borders for the native grapes. Of course, I now refer to vines planted for table fruit; as it is well known that in planting vineyards for wine, the

quality of the juice is the only point to be considered; for in that case, high manuring always injures the vinous quality of the fruit.

I have four Isabella vines, which have given me, for two years past, fruit nearly as large as those of the Black Hamburgh, and of very fine flavor. Perhaps it may please some of your readers to know the treatment they have received.

They stand in a border, 12 feet wide by 30 feet long. I prepared this border by throwing out all the soil and subsoil to the depth of 3 feet. The bottom was then filled up with stones, mixed with half *lime rubbish*, (from the walls of an old house,) one foot in depth. Throwing away all the subsoil, I then mixed with the good soil 10 cart loads of stable manure, and 2 barrels of bone-dust, and a cart load of leached ashes. With these all incorporated together, the border was made complete by filling up the remaining 2 feet upon the stones and lime rubbish in the bottom.

The vines were planted 6 feet apart, and trained to an upright trellis.

I was astonished at the gigantic shoots which they made the second and third years. The shoots were some of them 24 feet long, and as thick as my thumb. I pursue the simple spur mode of pruning, and obtain regular and heavy crops. Some of the bunches weighed a pound and a quarter last year; and the berries were so large that many persons, who saw the fruit, would scarcely believe it was the same variety as the common Isabella grape. So much for the effects of high culture. Respectfully yours, AN AMATEUR.

New-York, Dec. 10, 1848.

PRACTICAL HINTS IN TRANSPLANTING.

BY C. SMITH, NEWPORT, N. Y.

A. J. DOWNING, ESQ.—The suggestions I am about to make, relative to transplanting fruit and ornamental trees, are the results of some experience; and should they prove of any appreciable worth to the patrons of the Horticulturist, I wish them looked upon as some return for my indebtedness for pleasure derived from the labors of the editor and correspondents of this journal.

Premising that the reader is aware that, for New-England and New-York, spring is decidedly the best time for transplanting, and that it is time and money saved to prepare the land, intended for the garden or orchard, by manuring and faithful cultivation,—we will next say, that the selection of the trees in the nursery, is of material importance; that the tall, *slender* plants should be discarded, and only the stout, healthy ones preferred. The latter will, in nearly all cases, prove more vigorous, handsome, productive and long lived than the former; hence the importance of securing this advantage. *Instead of heading back the top, leave the limbs entire; but remove every alternate bud on every limb, sparing the terminals.* This saves a year's growth, and is much better than mutilating the tree, which is always done at some expense to its vital energies and length of life.

Of 75 fruit trees set out last spring, and treated in this way, I lost not one. I use no water in transplanting fruit trees,—not having been able to discover its advantages; nor do I press the earth over the

roots of the tree on placing it in the hole prepared for it, except to the width of the foot next the trunk, leaving the extremities of the roots, with the earth lying lightly upon them.

The pruning-knife, except for heading back an unthrifty tree, or pruning the peach, as recommended in the "Fruits and Fruit Trees of America," is, to my thinking, an unqualified nuisance in the orchard and garden.

At the season when the young trees begin to send out sprouts, or new limbs, watch for a shoot which is taking a wrong direction, and when found, *pinch* it off. Persevere in this course three or four years, and afterwards let the limbs take their own way, and they will not be likely "to get into a snarl." Removing the tender twigs does not leave a wound, nor check growth, nor diminish the vitality of the organized structure.

The past season I transplanted sixty forest trees, many of them twenty feet in height, and a majority of them were of those species which are extremely difficult to transplant with success. I did not lose a tree; and I attribute their uniform prosperity to my taking off, when planting, every alternate twig from every limb. This does not deform the symmetry, while it reduces the number of leaves to such an extent, that the diminished quantity of root can supply the organization with food sufficient to maintain life and growth. If it is the leaf that exhausts the newly removed tree, the suggestion I introduce will balance leaf and root without mutilating large limbs, which, as sure as effect follows cause, will injure the vital energies of the tree, and prevent its living out half its days.

C. Smith.

Newport, N. Y., Nov. 20, 1848.

NOTES ON THE BELLE ET BONNE APPLE.

BY PROF. OLMSTED, NEW HAVEN, AND GEORGE OLMSTED, EAST HARTFORD, Ct.

A. J. Downing, Esq.—*Dear Sir:* In the month of May last, being on a visit to my native place, on the east bank of Connecticut river, opposite the city of Hartford, I was much interested in viewing the fine fruit orchards of my kinsman, George Olmsted, Esq., and in witnessing the happy results of his methods of cultivation. My attention was particularly arrested by his beautiful collection of apple trees, in various stages of growth, and, most of all, by one of peculiar magnificence, called the *Belle et Bonne.* The oldest and largest of these, in my friend's collection, was a tree about twenty-five years old, which, every other year, bears about thirty bushels of apples. Several of the younger trees, of the same variety, are growing with remarkable symmetry of form, and promise to make splendid trees when they arrive at maturity.

But my admiration was particularly raised at the sight of a still nobler specimen of the same tree, to which Mr. Olmsted conducted me, which was growing in a neighboring garden belonging to Mr. A. Cowles. This fine example of the *Belle et Bonne* is dome-shaped, its limbs trailing on the ground, and the whole figure one of great symmetry and beauty. We found its entire circumference, as we paced the ground around the pendant limbs, to be about one hundred and

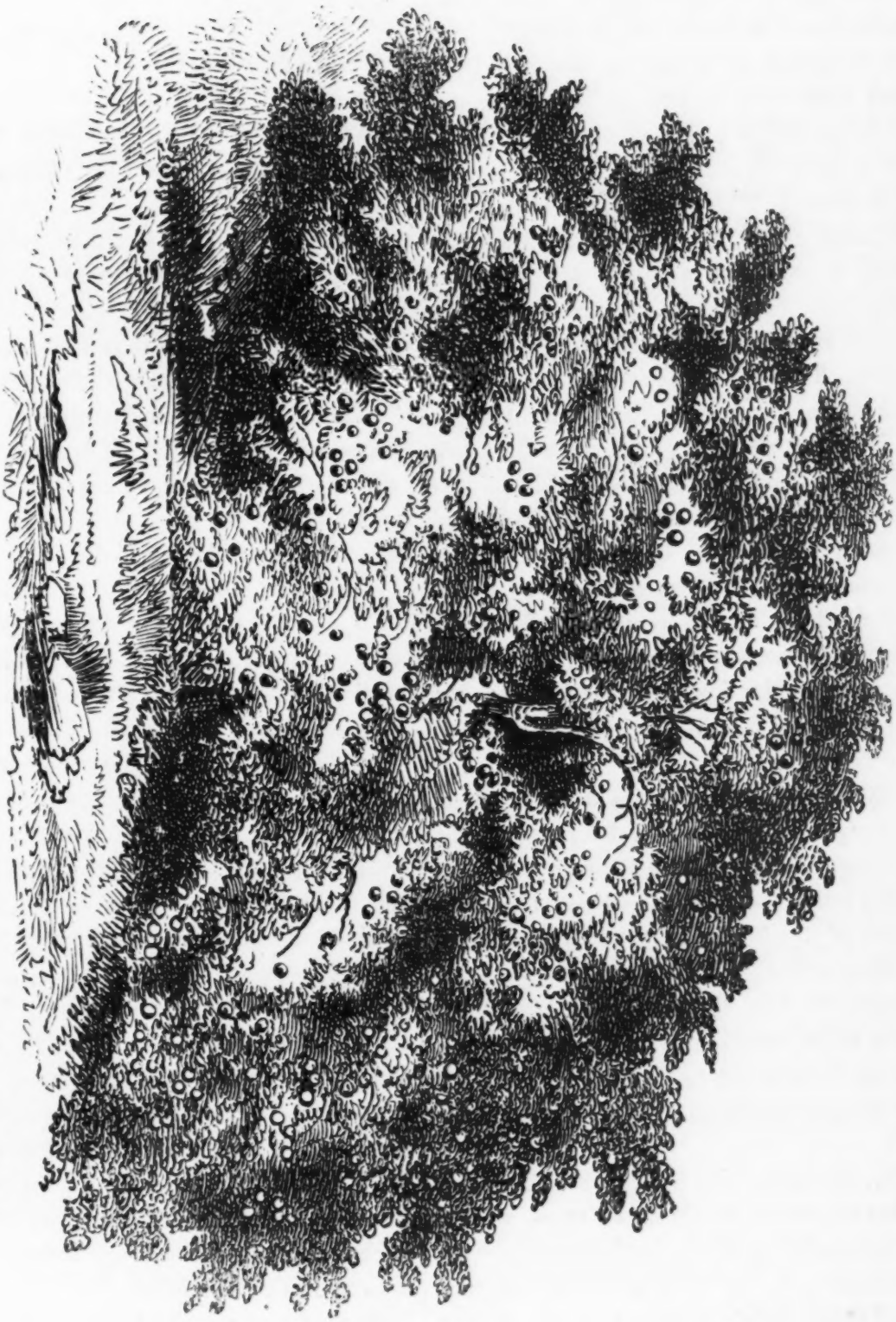

Fig. 97.—*The Belle et Bonne Apple Tree, at East Hartford, 40 years old. Circumference of the head 120 feet. Bears 40 to 50 bushels.*

twenty feet. The leaves are large, and of a rich green colour; and I could easily credit the statement of my friends, that, when loaded, as it was in the year 1847, with from forty to fifty bushels of apples, all large and fair, it presented a spectacle not a little exciting to the lovers of fine fruit trees. The fruit ripens late in the fall, and, at the time of my visit, the last of May, it was still perfectly sound, of an agreeable sub-acid taste, and entitled to rank high among the finest winter apples.

The *Belle et Bonne* is, I learn, not a French variety, as the name might imply. It is a native variety, so named, (*Belle et Bonne*,—being, literally, *beautiful and good*,) by the French, at the time the French troops were stationed here during the revolutionary war. The original tree, (the parent of those now growing here,) was cut down only two years ago. It stood upon the land of Mr. JASON ROBERTS; and Mr. R. says it was believed to be more than 100 years old when cut down.

My friend having obtained an excellent drawing of the tree belonging to Mr. COWLES, it was agreed between us, that we would (with your leave,) give to the cultivators of fruit abroad the opportunity of sharing with us the pleasure with which we viewed the East Hartford Belle et Bonne; a tree which combines, in a singular degree, the qualities of the finest fruit bearer, with the ornamental properties of a fine shade tree.

Mr. OLMSTED also showed me examples of his treatment of old apple trees, which, by successful grafting, he has not only reanimated with the vigor of youth, but rendered them prolific of finer varieties of fruit than were ever yielded by them before. I have also been favored with occasional specimens of his fall and winter apples, which, for beauty of form and deliciousness of flavor, have never been surpassed in my experience. Respectfully yours,

DENISON OLMSTED.

Yale College, Sept. 3, 1848.

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We add to the foregoing the following additional notes, by Mr. GEORGE OLMSTED:

DEAR SIR—The old apple trees on my grounds, to which Professor OLMSTED alludes in the foregoing, were a few years ago worthless, until they were completely changed by my grafting them over.

These trees I commenced grafting six years ago last spring. ***I began on the top, and grafted one-third of the tree each year.*** It therefore required three years to complete the entire heads of the tree.

I like this method better than any I have ever tried for grafting large trees, as it gives the grafts a good opportunity to get well started. Cutting off and grafting the top first, gives the grafts there the best possible chance, while the necessary reduction of the top throws the sap into the remaining side branches, which fits them well for grafting the following year; and the third year, the lowest branches being made ready in the same way may be grafted successfully. By this mode, it will be seen that when the grafts are put in on the side branches they are not shaded by heavy shoots above them, and they have an unusual supply of nourishment to carry them forward. Those who have attempted to graft the whole head of a large tree at once, are best aware of the great difficulty in the common mode of getting the grafts to take on the *side limbs*.

One of these large trees, so treated, is probably more than 75 years old, and has now an entirely new and vigorous head, grafted with this excellent variety. When I began with it, the fruit was only fit for

cider, and it was questionable whether the tree should not be cut down. By grafting it in this manner I have added surprisingly to its value. Two years ago (the bearing year,) I obtained from it 10 bushels of apples, last year 8 bushels, and this year, (only six years from the time I began to graft it,) I gathered 28½ *bushels* of excellent fruit!

I consider this tree now worth $100; the cost of grafting it was about $5; and the latter was all repaid two years ago,—the first season the grafts bore fruit. Yours respectfully, GEO. OLMSTED.

East Hartford, Ct., Oct. 25, 1848.

P. S. My mode of setting out young trees in our soil, (a light sandy loam,) is to dig the hole six feet square, and three and a half feet deep. I reject the subsoil of sand when filling in the holes, and place a layer of sods or rich turfs at the bottom and sides of the hole. I then fill up to the height on which the roots of the tree should be set with rich mould, (which I cart to the spot, if it cannot be found in the vicinity.) When the tree is planted, I leave the ground about the tree in a slight hollow; and as the main point here is to guard against the effects of drouth, I finish by *mulching*, i. e., placing a heap of litter round the tree for the first season. Repeated deep hoeings are a very good substitute.

With this foundation, and with proper after care, my trees grow with great vigor, and bear large crops of good fruit. G. O.

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We have heard much of the beauty of growth of the *Belle et Bonne* apple, which has a great reputation in Connecticut; and this portrait certainly justifies all that has been said. Mr. OLMSTED informs us that young trees take the same full and symmetrical habit, and that this variety is remarkable for its fine habit of growth beyond any other known to him.

The fruit of the Belle et Bonne we have examined, and find it a very large and showy yellow apple, belonging to the same class as the Fall Pippin, the Fall Harvey, and the Golden Ball. It has an excellent sub-acid flavor, not, perhaps, equal to the Fall Pippin, but fully equal to the two others. It appears to be so much more productive than either of these varieties, that if it retains this habit in other parts of the country, it will become one of the most popular market fruits. In Hartford, we learn it has scarcely a rival for size, beauty of appearance, and profit to the cultivator.

Mr. OLMSTED is a practical fruit grower of much skill, and we recommend his remarks on grafting large apple trees to the attention of our readers. His practice is sound, and is based on the true theory. ED.

WINTER TREATMENT OF KITCHEN GARDENS.

BY A SCOTCH GARDENER, BOSTON.

IN the early part of winter we often have a good deal of open or mild weather; and it is a matter of some consequence to know how the gardener can be employed to the best advantage.

As I observe that, comparatively, few gardeners here appear to place sufficient importance on the value of exposing the soil, as much as possible, to the winter's frost, I wish to be allowed to make a few remarks upon the subject.

Ridging up the surface of every unoccupied spot, in a kitchen garden, is one of the things most of all insisted upon in

Great Britain. Experience has demonstrated, hundreds of times, that it mellows the soil, destroys the eggs of insects, and drives out any acids or excrementitious matters that exist in old soils to the detriment of the succession of annual crops. Indeed, many old gardens that are quite unproductive, if left alone in this particular, are kept in capital condition by constantly attending to it.

The ridges ought to be thrown up a foot and a half high, in the direction of the slope of the ground, so that the water will run off, and not stand in the trenches. They may be as close together as they can be made, bearing in mind to keep the tops of the ridges 18 inches high. I consider it a great advantage to turn up a little of the subsoil—say a couple of inches each season—at the time of ridging. This brings a little fresh loam to the surface; and after being acted upon by the atmosphere, it mixes very kindly with the top-soil, and helps much to keep up the fertility of the garden.

If you have fresh stable manure at hand, it is well to give the top-spit a good coat, and mix it through the soil when ridging up. It will be found to put the soil in good condition for spring crops of vegetables; and it is by far the best mode of applying coarse manure to the kitchen garden. Yours respectfully, A Scotch Gardener.

Boston, Nov., 1848.

NOTES on the ARCHITECTURE AND GARDENING of the EASTERN STATES.

BY W. H. SCOTT, TOLEDO, OHIO.

I think, when I saw you in your lovely Highland home, last July, you partly elicited a promise to give, in a future number of the Horticulturist, some impressions of a rather hasty visit to New-England. I have read several interesting numbers of the Horticulturist since then, and have certainly derived more benefit from their perusal than if a part of the space had been occupied by any observations of mine. A western man, whatever may be his pride of home, and attachment to a country possessing so many natural advantages, can hardly avoid cherishing some slight covetous feelings, while contrasting it with one which age and wealth have subdued and beautified; but this is somewhat alleviated by the idea of a smoother and speedier road to arrive at such a stage of improvement.

Perhaps in no one aspect does New-England (*old*, as she appears to us,) exhibit so great a superiority over the untamed west, as in her rural architecture. In passing through its more southern portions, the pleasantest ideas of the comforts of its houses, are awakened.

The general adaptation of these to the purposes for which they were designed, is one of the most material sources of pleasure. The observer will occasionally see ostentatious displays of bad taste, where *show* has been the grand object of a proprietor, influenced in a great degree, perhaps, by an ambitious but ignorant architect. Snug little thirty-by-forty *parthenons*, stubbornly intrude themselves upon the notice, as if insisting upon an attention which their owners imagine so much splendor of column should command.

Something of the same spirit pervades building humanity now, that De Tocque-

VILLE noticed in his visit to this country. While passing, for the first time, the Narrows, in his approach to New-York, he was struck with the grandeur of the marble palaces seen in the distance; but whose pediments appeared, on nearer approach, to be supported by great wooden columns!

One may see, in passing by land from New-York to New-Haven, many burlesques in the architectural way. I have in my eye an example in a building, which must have cost somewhere between fifty and one hundred thousand dollars; certainly not less than the former sum. It was evidently intended to be an imitation of an Oriental or Persian palace, in its architecture, as you will see by a glance at its domes and minarets. But with all the *assumption* of the front to be stone, the sides could show nothing better than flimsy clap-board covering.

The rural Gothic and bracketed structures, which seem now to be greater favorites than any other, for the better class of residences at the east, do not exhibit so many deformities as one might very naturally suppose would result from the infancy of these styles in this country. With some who have crude and half formed ideas of the Gothic, the beau ideal seems to have been attained by an elegant *superfluity of gables;* so that the chambers might all be found "up among the peaks." Another, you will observe, seems not so anxious about the gables as about his one idea of spacious verge boards, or fanciful *terra cotta* chimney stacks. Occasionally may be seen a house which might, if seen alone, be considered the perfection of beauty; but, surrounded by such a nursery of young shade trees, that the good effect produced by the view of the house is nearly lost.

These are some of the defects apparent to an observer; yet how much is there to admire. *White*, for the outside of houses, is plainly not the only orthodox colour. Fancy is very properly gratified by such a variety of colouring, that each individual taste may find its own. From a light fawn to a dark brown, shades can be found, but not described, which seem so much more appropriate than white for many situations, that the occasional over colouring may be very easily pardoned. You need not understand me as not still having some love for white. There is something so attractive to me in a well painted white dwelling, with cool green shutters, and tastefully embellished with vines and shrubbery, that I shall still pertinaciously insist upon its claim, to hold its place among those of darker hue.

There are many situations where white houses will not present that glaring appearance, which Uvedale Price speaks of, as so like the eternal grin of a fool.

[White is not only permissible but agreeable, when the house is embosomed in foliage, so as to subdue the glare. ED.]

Rural architecture seems to have been studied to good advantage by the farmer and mechanic. Innumerable are the little gems of cottages, surrounded by pretty and attractive, but not expensive, outside embellishments. A sum less than one thousand dollars has erected quite a large proportion of the attractive houses of the New-England mechanics. Internal convenience has been studied to some advantage, and outside show—which, I may say, it is no trait of a New-Englander to despise—has not been allowed to overbalance a more palpable good.

While on this subject, let me say something of architectural works. I have spent some time in looking over the numbers of

Ranlett's "Architect." There are many buildings delineated there, with an appearance so attractive, and at an expense so moderate, that they would be considered just the thing, were it not that the outside once seen, there is a very natural inclination awakened to peer into the excellencies of what is within. When it comes to this, we are quite as naturally disappointed to find rooms inconveniently contracted,—in many of the houses, so small that one with half the means allowed in the specification would hardly be willing to live in them. For those, then, for whom it is intended, the work is *not* just what is wanted. The greater portion of those who build, in this country, lay out from nine hundred to two thousand dollars in the construction of their dwellings.

For a more expensive class you have provided. But if the question can be satisfactorily answered, as to the equal ability of that less ambitious class to buy and read a book better adapted to their wants, who is to provide it?*

The description of the horticultural festival at Boston, in the November number, was delightful, leaving a most refreshing impression upon the mind. Such a congregation, of the best talent and truest spirits of the country, as met in old Faneuil Hall, is seldom witnessed; and never, I may safely say, with more disinterested purpose, or closer community of feeling. Those Bostonians are grand punsters. The many chaste and sparkling sentiments, which the occasion called out, were to the point; but additional interest was awakened by the delicate play upon words which characterised many of them, and especially some given by the two Quincys, who are somewhat celebrated that way.

* Our new work on *Country Houses*, now in preparation, will include designs for cottages of very moderate cost. Ed.

I see that the Clinton grape is recommended by you, and some others, as a good grape for the northern portion of the country; but it is not among your varieties in the "Fruits and Fruit Trees." In some respects, it is more worthy of cultivation than the Isabella. It is a strong grower, early—ripening here nearly two weeks before that variety—a good bearer, and much more hardy. Last year both made a luxuriant growth in my vineyard. On the fourteenth of September, 1847, there was an unusually severe frost, and my Isabella vines on two rows of trellis, were nearly all killed to the ground, while an equal number of Clintons escaped without injury.

I had supposed, until this fall, that grafting the pear upon the white thorn necessarily rendered the tree somewhat dwarfish in its character. An experiment has shown me that such is not always the result.

Two years ago last spring I grafted twenty-five or thirty pear scions into white thorn roots, which I had taken up for the purpose. The root was put in the ground, so that the split should be about on a level with the surface of the earth. As the grafts grew, a little extra earth was thrown around them to prevent the wind from breaking them off. Last October I had occasion to take up some of them for the orchard. When they were lifted, I was surprised to find that all the young trees had parted company with the old roots, which had given them their first sustenance, leaving the top of the stump as smooth as when first sawed off, and the cleft, from which all traces of the pear tree had vanished, with the same appearance as when the grafting was done. The trees had no other than fine thrifty pear roots.

The thorn was found with the same short mutilated roots as when taken from its native ground. Scarcely a rootlet visible, and all dead. Yet this stub was sufficient to give the graft a most luxuriant growth until it had thrown out roots of its own. W. H. Scott.

Toledo, O., Dec. 3, 1848.

PEAR TREE BLIGHT,

BY DR. HERMAN WENDELL, ALBANY.

Dear Sir—In your comments on my letter, treating of the diseases to which pear trees are more or less subject throughout our whole country, printed in the Horticulturist of last February, you say—"That a mild winter, with sudden and great fluctuations of temperature, in a climate like that of Albany, is perhaps more fatal to a tender barked tree than one of uniformly low temperature." This position I shall not attempt to controvert; for it coincides with my own experience. You also go on to say—"Take the present season, for example, &c. * * * At Albany, on the 12th and 13th of January, the mercury sunk as low as 22° below the zero of Fahrenheit. This was followed, perhaps, by bright weather; and in trees fully exposed to the great alternations of frost and sun, we think *frozen sap-blight* would be very apt to occur." The extreme cold to which you allude, as having occurred in January, and which you say was *perhaps* followed by mild and bright weather, was so followed; and this was not the only occurrence of the kind during the winter. For, several times, the vicissitudes were equally great; so frequently, in fact, that cherry, peach, plum and nectarine trees bore little or no fruit during the past season in this whole vicinity,—the fruit buds having been destroyed by these sudden changes of temperature. Yet, notwithstanding all this, my pear trees have borne well, and I have not lost one large tree from my extensive collection, by what you have called frozen sap-blight—that which shows itself *first* on the trunk or the body of the branches of the tree; whereas, last season, the preceding winter to which had not been marked by such sudden alternations, but which, on the contrary, was unusually mild and equable, I lost more than twenty. Neither have I lost more than two small trees from that disease which makes its first appearance on the extremity of the stem, (not the scolytus pyri,*) or but a very few limbs from the older trees; whereas, the preceding summer, I lost a large number of small trees, and nearly half the branches from some of my large ones from such cause.

After the publication of your February number, I determined to wait until the termination of the season, which has just passed, before expressing myself further on the subject of pear tree diseases; because I thought that the course things took, subsequent to such a winter as the last, would, in all probability, indicate to us somewhat whether the diseases in question were caused by frozen-sap, scalded-sap, or some other influence.

Now, I have related facts as they are. Others, as well as myself, can draw their

* I may as well remark, en passant, that the moment I discovered the slightest indications of disease in the extremities of a limb, I amputated it, with a clean knife, at its junction with the main stem, and covered the wound with the shellac solution. This course invariably checked its further progress.

own inferences. I shall content myself by merely relating the course pursued with my trees in the autumn of 1847; and if others choose to follow my plan, perhaps like experience may be theirs. Before I proceed, however, I wish to remark, that I do not intend to assert that the treatment pursued by me kept disease from my trees. Several seasons, of like experience with my remedy, would be necessary to induce me to give a positive opinion as to any course being specific for such destructive maladies. I only wish to relate things as they have occurred this year, so that others may be induced to experiment as well as myself.

I have, during several years past, kept constantly ready for use a compost of ashes, lime, and iron scoria, from the smith's forge, which I have invariably applied round and about the roots of pear trees, when planting them out, and also on the surface around the larger trees every second year. Last autumn, when taking up such trees as had been killed during the season, I discovered that the iron used by me was entirely unaffected by exposure to atmospheric influences, or by the moisture in the earth. This indicated to me that *such* iron was, of course, useless. I therefore determined to pursue a different plan; and procured from a steam engine manufactory, turnings of *pure* iron, which I mixed, as before, with ashes and lime, and applied a given quantity to every pear tree on my place. I would have preferred crushed bones in lieu of the lime, but could not procure them in Albany.

I again repeat, that I do not wish to be understood as giving it as my opinion that the iron prevented disease showing itself among my trees. Others are as capable of judging, with the facts before them, as I am. I will only add that, during the past season, diseases have been very virulent among the pear trees in the vicinity of this city; many growers having lost nearly all their collection. Yours very truly,

HERMAN WENDELL.

RANDOM NOTES ON GRAFTING, ETC.

BY A. FAHNESTOCK, LANCASTER, OHIO.

HAVING some apple grafts, of the *Rawle's Jannet*, left over last spring from my root grafting, it occurred to me to ascertain how long they could be kept available for successful working. Accordingly I put them into damp sawdust, permitting the sawdust to dry as the season advanced, so that finally they were protected from the air only,—the sawdust being then perfectly dry. With these grafts I worked ten stocks in the first week of May; they all took, and made a fine growth. In the first week of June, and, also, first week of July, I worked a similar number; not one failed. The last of July, I worked the balance, (ten.) Some were tongue or cleft grafted, some spliced, and some, I might say, "bud-grafted;" that is, I cut off the stock, made an incision downwards in the bark, as if budding, opened the bark and inserted the graft,—it being previously prepared, as if for splice grafting. These last have done remarkably well; having all made from one foot to one and a half foot growth. In the last instance, the grafts were perfectly dry in appearance, and quite shrivelled. I forwarded this fall to my friends, W. R. SMITH, of Macedon, N. Y., and JAMES R.

MATTHEWS, of Coshocton, O., each, a tree of this last grafting. I am induced to believe, that had I kept part of the grafts they would have succeeded, worked in August.

I received from Messrs. ELLIOTT & Co., in the spring of 1847, I believe, a tree of Van Mons' Leon Le Clerc pear, which never burst a bud until September following. In the month of August, I cut several grafts from this tree, and worked them on apple stocks, in order to save the variety; they grew remarkably well.

Previous to last spring, I had been very unsuccessful in grafting the cherry,—having practiced splice and tongue, or cleft and saddle grafting. In saddle grafting, I pursued the method as detailed by you in your "Fruit Trees," but found it tedious and slow to split the graft, and then pare it out with a small blade, besides being very difficult to have a regular smooth surface. I discovered, upon examining my budded cherry stocks last spring, that out of some six or seven hundred, one hundred and fifty would not grow; and having cut grafts at the proper period, I determined to graft all the doubtful ones. In the winter season, when nights are long, and leisure time always to be had, I take what is called, with us, "post-office" paper,—being very thin and tough, (I enclose a sample,) and cut the sheets lengthwise, in strips three-fourths of an inch wide, then dip them into melted grafting wax, drawing them between two sticks, previously prepared,—having a slight shaving taken from each, widening the opening towards the end or point; the opposite ends are tied together. You thus easily introduce each slip and draw it through, depriving it of all unnecessary wax; and, as thus prepared, I put each strip lengthwise upon top of the other, pressing the ends down, so as to make them adhere, until I have upon one heap a "stick" or bunch of grafting paper, numbering each bunch from 150 to 200. They will remain thus together, until taken off for use.

My method of preparing the graft is as follows: Take the graft in your left hand, and, with a sharp blade, (one that is broad and thin is best; a shoemaker's knife, ground and properly prepared, does finely;) make an incision downwards from three-fourths to one inch long, commencing at the outer edge or bark, drawing your blade gently from heel to point, so that you finish your cut in the centre of the graft. Reverse the knife, or graft, and make a similar cut opposite the first, meeting it at its extremity. You thus take out a wedge, leaving a regular, smooth and even surface in the graft. Top your stock in wedge form to fit the graft, which can be done so neatly as scarcely to be perceived. (I would remark, that I always endeavor to have the stock, when cut off, about the same size as the graft.) Then take a strip of the waxed paper, and wrap the union several times to keep out the air and wet, drawing it tight, and tying it slightly with some bass. A slip of this paper always binds four grafts with me. You, of course, will loosen and take off both tying and paper at the proper period of growth. This fit is so neat, and the bulk of the shoot, where grafted, so small, that few will notice it. Those who visited my nursery during the season were forcibly struck with the entire success attending my spring grafting. I lost so few, as scarcely to be worth naming. From seven scions, kindly sent me, by mail, by Dr. RUMSEY, (of Fishkill Landing, N. Y.,) cut from his late Morello, I raised eight pretty trees. One scion being longer than necessary, I cut off about an inch of wood with but one bud only; it made a neat tree. And with two grafts of *Bigarreau gros*

Cœuret, received from you, I was equally successful.

Your description of the "Gen. Hand" plum, as set forth in a late number of the Horticulturist, agrees precisely with that fruit, as grown here, from the bearing tree, of which I forwarded you grafts last season; from the fruiting of this tree, for 8 years past, and general observation, (although the location is a bad one,) I am induced to call it one of the most valuable of plums, on account of its having never failed to bear a full crop, and matures its fruit perfectly. I admit that it is not so finely flavored, nor quite so large, as the Washington.

I received some pears in Nov., 1846, (from New-York,) on quince. These quince stocks never had the top pared down to the bud, but had, say two inches of wood above; consequently, the growth of the pear on the side of the stock, formed a different grain or wood; and when they arrived here, several were broken off at the union. To save the varieties, I took two pieces of board, nailed them together at right angles, (like a small pig trough,) put the grafts in the angle, and nailed two cleats over them, dug a hole in the ground, laid a board in the bottom, placed the trough thereon inverted, closing each end with a small piece of board also, and then covered the whole with earth, raising it sufficiently to turn the water from it. In the spring I found these grafts in the best possible condition for working. Yours respectfully,

A. Fahnestock.

Lancaster, Ohio, Nov. 27, 1848.

DESCRIPTION OF TWO NEW APPLES.

BY DR. W. D. BRINCKLE, PHILADELPHIA.

The two following varieties of apples, from Pennsylvania, have been exhibited before the horticultural societies in that state, and have elicited high commendations. As we find, by the specimens sent us, that they are deserving of their reputation, we have much pleasure in presenting the following descriptions, by Dr. Brinckle, with outlines, which we have prepared from the specimens sent us. Ed.

Philadelphia, Nov. 21, 1848.

Dear Sir—I send you, by Adams & Co.'s express, a box containing specimens of the *Republican Pippin*, which I received yesterday from Dr. Kittoe, of Lycoming county, and the *Smoke-House* Apple, from Dr. Murphy, of Parksburgh, Penn.

I enclose descriptions of these two varieties, drawn up from the Westchester specimens, sent me in September. Make any use of them you think proper. The former variety may be too ripe when you receive it, for you to judge of its excellence. If eaten the last of September or beginning of October, it is juicy, with the walnut flavor very perceptible. The Smoke-House is in fine eating order, though the specimens are not as large as I have seen.

I. Republican Pippin.—This delicious autumn apple was first brought to my notice, during the present season, by J. Baldwin, Esq., president of the Westchester Horticultural Society, who very kindly sent me specimens of the fruit in September.

In regard to its origin and history, I received, a few days ago, from Dr. Kittoe, a highly intelligent physician, of Muncy, Ly-

coming county, the following interesting and satisfactory information:

"The Republican Pippin originated here. Geo. Webb, who moved to this place in 1796, found the original tree in the woods, and named it the Republican Pippin. As he kept a nursery, he propagated the variety extensively; and it is now well known in this region of the state, where it is highly esteemed. Some scions were sent to England, in 1827, to J. H. Lewis, Esq., of East Farleigh, in Kent, and he now has trees of it in bearing. J. W. Alder, Esq., of this place, took some of the grafts to a friend of his at Burlington, N. J., some 20 years ago. The original tree is still standing, in good health, and had a large crop of fruit on it this year. The apples have been preserved till April; and Mr. Black, of Tioga county, told me that, with him, it proved as good a winter apple as he desired. He lives, however, in a very cold place (Blockhouse,) on the Alleghany mountain. The usual time of ripening is from the middle of September to the middle of October. It is fit for cooking the last of July. For drying it cannot be surpassed, cooking to a fine pulp in a very short time. In the green state it cooks remarkably well, and has a delicious flavor. The tree grows vigorously on any soil, but does not bear well on limestone land. It has a crop every year."

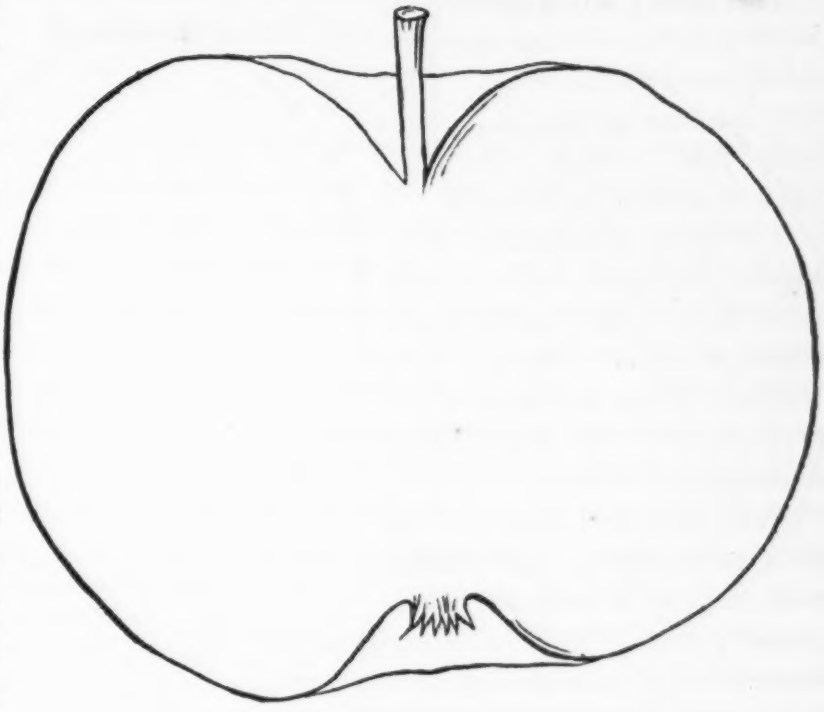

Fig. 38.—*Republican Pippin.*

From the specimens sent to me, the following pomological description has been drawn up:

Fruit large, from two and three-fourths to three inches long, by three and three-fourths to four inches in width; form roundish flattened; skin striped with red, on a mottled reddish ground, and, where not exposed to the sun, of a greenish yellow, [dotted with a few large gray dots;] stem about an inch long, and very slender for so large a fruit, inserted in a narrow, rather deep cavity, which is sometimes a little russetted;* calyx with small or narrow segments, closed, and set in a moderately deep basin; core small; seed brown, large, broad, plump; flesh yellowish white, tender; flavor pleasant and peculiar, [slightly sub-acid,] resembling somewhat that of walnuts; quality No. 1. Ripe in Sept. and Oct.

II. Smoke-House.—This excellent apple originated in the neighborhood of Lampeter township, Lancaster county, Pennsylvania, on the farm of Wm. Gibbons. It grew near his smoke-house; hence its name. It was introduced into notice about 12 years ago, by Mr. Ashbridge

* The russet patch diverging in rays. Ed.

This variety is very productive, bearing every year, but more profusely every alternate year. The tree is a free grower, and comes early into bearing. Branches grow somewhat horizontally.

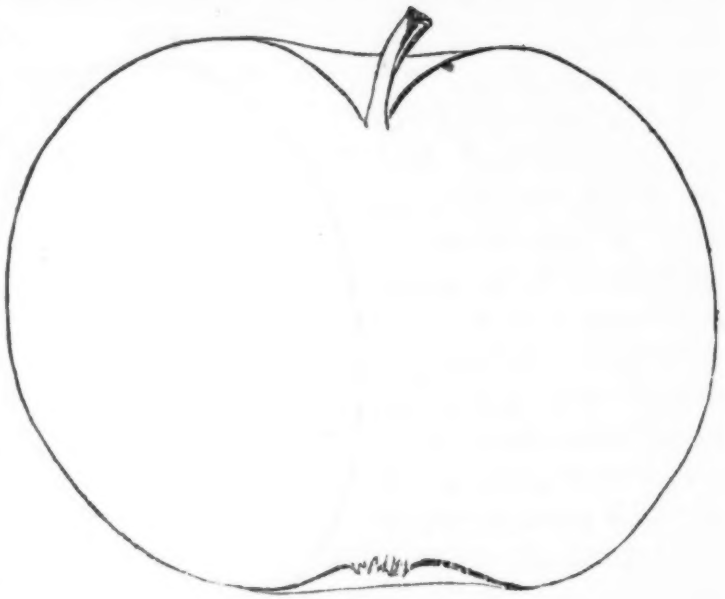

Fig. 39.—*Smoke-House Apple.*

The above information, in regard to this apple, was communicated to me by Mr. BALDWIN, president of the Westchester Hort. Society. From specimens of the fruit he sent to me, the following description is taken:

Fruit above medium size; form flat; skin striped, and mottled with red, on a greenish yellow ground; stem rather short and slender, and inserted in a narrow, and not very deep cavity, [sometimes partly filled up;] calyx of medium size, closed, and set in a shallow flattened basin; core medium; seed brown, long; flesh yellowish white, crisp and juicy; flavor agreeable, with a delicate aroma. Ripe in October.

Very sincerely yours, W. D. B.

Philadelphia, December, 1848.

DESIGN FOR A SMALL VILLA.

THE FRONTISPIECE of the present number, shows the elevation and plan of a dwelling, designed by A. J. DAVIS, Esq., of New-York, and erected at Rahway, N. J., for L. B. BROWN, Esq.

It is an excellent example of economical arrangement; and we scarcely remember an instance where so good an effect, joined to so much comfort and convenience, has been produced at so moderate a cost.

The plan of the principal floor shows, besides the entry, a parlor, a saloon, a dining-room, a kitchen, and a pantry. Not an inch of space is lost; and the management of the stairs and passages in the second story, is so complete that six good bed-rooms are afforded.

The exterior, without making pretensions to ornamental effect, is well composed; the proportions are good, the style is well expressed, and the whole is altogether satisfactory to the eye and the judgment.

The veranda, which extends along the front of the building, gives an expression of great comfort to every house, in a climate where shelter and repose are so necessary, in certain hours of the day, as in the middle states, and where a veranda is therefore as indispensable as almost any apartment in the dwelling.

We think there are few examples existing in this country of a cottage villa containing so much accommodation, and in so unexceptionable a taste, for the moderate sum of $2,300,—the cost of this design, as completed at Rahway.

A CHAPTER ON PEARS.

BY DR. WM. W. VALK, FLUSHING, L. I.

A COMPARISON of *opinions*, merely, may not be without its use, particularly when such comparison is made between persons resident in different countries and climates. The cultivation of the *pear*, for instance, is necessarily modified by the exigencies of the *climate* in which it is grown; and this influence not only may, but *does*, affect the quality of the fruit so much, as to render the same pear unexceptionably fine in one locality, and good for nothing in another. Our own experience has proved this; and we doubt not the experience of all candid men will be to the same effect. So, too, the quality of the *soil* exercises a controlling effect, both upon the health and vigor of the tree, and the value of its fruit. In the one case, it is perfectly satisfactory to the cultivator, when that soil is congenial to the habit of the tree; in the other, he has nothing to look for but disappointment. Singularly enough, and most unaccountable is it, that notwithstanding the acknowledged influence, both of climate and soil, in promoting, retarding, or absolutely preventing the growth and prolificacy of fruit trees, there are thousands yearly purchased and planted, by a great many persons, without a moment's consideration of these well established facts. North, south, east, and west, in every kind of soil, known and unknown, pear trees are expected to flourish and be productive; and, if in each particular locality certain varieties *do not* give satisfaction, there is no thought bestowed upon the *real* causes of the misfortune; but upon the varieties, "*per se*," is lavished all the blame. *They* are at once pronounced bad upon false evidence.

Some time in June last, I addressed a letter to a friend in Brussels, who cultivates a great many fruit trees, (mostly *pears*,) and requested him, if convenient, to give me a list of those he knew to be *the best in that climate*. In his reply, received Oct. 21st, allusion is made to the influences I have mentioned above; and I have his experience *where he is*, accompanied by a doubt as to how far it will prove correct in the United States. "But, (says he,) in your immense extent of country, embracing, as it does, every variety of soil and climate, there need be no difficulty in growing all good pears to perfection. Your amateurs have certainly to make themselves familiar with certain facts relating to vegetable physiology, and then apply them to the practice of selecting and growing every really valuable pear, if they desire to be successful. Some grow best on the natural stock, others on the quince, and some are worthless on either. Some do best in rich soil, some not, and *all* more or less require it to be moist or dry to a greater or less extent. The variety and the stock, best adapted for it, will go far to determine all these points; let your pomologists study them by reading and experiment. They will not regret the time spent, I assure you."

"The pears known to be of the *first quality* here, (Belgium,) by my own trials, and those of other experienced cultivators, are as follows, viz:

Ananas, Angleterre de Noisette, Beau present d'Artois, Belle d'Aout, Belle de Noel, Belle epine Dumas, Belle excellente, Belle Henriette, Belle Julie, Bellissime d'ete, Bergamotte crassane d'automne, Berg. crassane d'ete, Berg. crassane d'hiver, Berg. d'Esperen, Berg. de Hollande, Berg. de Paques, Berg. Libotton, Berg. Sylvange, Beurre Antoinette, B. Beauchamps, B. Beaumont, B. Benoist, B. Benner, B. Beymont, B. blanc, B. blanc des Capucius, B. Bosc, B.

Bretormean, B. bronze, B. Curtet, B. d'Amanlis, B. d'Angleterre, B. d'Angleterre d'hiver, B. d'Aremberg, B. Elberg, B. d'Hardenpont, B. d'hiver, B. Defais, B. de Louvain, B. de Montgeron, B. de St. Ghislain, B. des Charneuses, B. Diel, B. douce savern, B. Drouineau, B. Dumortier, B. Duval, B. Giffart, B. Goubalt, B. gris, B. gris d'hiver, B. gris d'hiver nouveau, B. Kennes, B. Lefevre, B. Lombard, B. lucratif, B. Moiret, B. Piquery, B. Quetelet, B. Rance, B. romain, B. royal, B. St. Nicholas, B. Spence, B. Sterckmans, B. superfin, B. Tougard, B. vert tardif, Bezi d'Echassery, Bezi d'Esperen, Bezi de Caissoy, Bezi de Chaumontel, Bezi de Chaumontel anglais, Bezi Chaumontel panache, Bezi de la Motte, *in warm and light soil*, Bezi de Montigny, *warm and light soil*, Bezi de printems, Bezi de St. Waast, Bezi des veterans, Bezi Goubalt, Blanquet le petit, Bois Napoleon, Bon chretien d'ete, Bon chretien d'hiver, Bon chretien Napoleon, Bon chretien William, Bonne des haies, Bon parent, Bouvier Bourgmestre, Bouvier d'automne, Broom Park, Caillot rosat, Calebasse, Calebasse d'ete, Camerling, Capsheaf, Capucine Van Mons, Catillac, (for cooking,) Catinka, Charles Durieux, Charles Frederick, Charles Smet, Charles Van Hooghten, Charles Van Mons, (these 5 raised by V. Mons,) Citron des carmes, Clement, Colmar d'Aremberg, Colmar d'ete, Colmar d'hiver, Colmar du Lot, Colmar Josse Smet, Colmar Nelis, Coloree d'aout, Compte de Flandre, Compte de Lanny, Consieller de la Cour, Cuisse Madame, Cumberland, Delices d'Hardenpont, Delices d'Hardenpont d'Angers, Delices de Jodoigne, Delices de Lovenjoul, De Spoelberg, Dingler, Doctem Capron, Double Phillipe, Doyen Dielens, Doyenne Boussoch, Doyenne d'Alencon, Doyenne d'Automne, Doyenne d'ete, Doyenne gris, Doyenne gris nouveau, Doyenne Defais, Doyenne Goubalt, Doyenne musque, Doyenne panache, Doyenne Sieulle, Duchesse d'Angouleme, Duchesse d'Angouleme panache, Duc de Brabant, Duc de Nemours, Duchesse de Mars, Eliza d'Heyst, Emerald, Emilie Bivort, Enfant prodigue, Epine d'ete, Epine d'hiver, Epine Dumas, Epine rose, Esperinne, Excellentissime, Ferdinand de Meester, Fondante de Lille, Fond de Malines, Fond de Septembre, Forel, Forme de Bergamotte, Forme de Bergamotte crassane, Forme de Cartet, Forme d'Urbaniste, Fortunee, Fourcroy, Fred de Wurtemberg, General Dutilleul, Grande Bretagne, Grand Soliel, Graslin, Gros Muscat, Gros sucre, Grosse Marie, Gustave Bourgogne, Hacon's incomparable, (very delicate on the quince,) Heliote Dundas, Henkel d'hiver, Henri Capron, Henri Nicaise, Henri Quatre, Henri Van Mons, Henriette Bouvier, Hessel, Jalousie de Fontenay-Vendee, Jaminette, Jean Baptiste Van Mons, Jolivet, (*ripe end of June*,) Josephine de Malines, Jutte peer, Leon Le Clerc, (V. M.) Lewis, Louis Gregoire, Louise Bonne d'Avranches, (*light and warm soil*,) Louise d'Orleans, Louise de Prusse, Madame Durieux, Maria Louise Delcourt, Marie Louise Nouvelle, Marie Louise Van Mons, (*light soil, warm and rich*,) Marquise d'hiver, Martin Sec, (*cooked*,) Mesdelices, Mignonne d'hiver, Milot de Nancy, Muscat Robert, Navez, Ne plus Meuris, Neuve Maison, Nouveau Poiteau, Nouveau Simon Bouvier, Oken d'hiver, Orpheline d'Enghein, (is this a syn. of Beurre d'Aremberg ? W. V.,) Passe colmar, Passe colmar dore, Passe colmar masque d'automne, Passe colmar nouveau, Paul Thielens, Petit beurre, Poire Arlequin musque, Poire Davy, Poire de France, Poire de Naples, Poire de Prince, Poire de Thompson, Poire des chasseurs, Poire des deux saurs, Poire des S. S. Peres, (cooking only,) Poire Delavault, Poire Eyewood, Poire His, Poire Jacobs, Poire Jalve, Poire Louis, Poire Roitelet, Poire Stas, Pucelle condesienne, Reine des poires, Regine, Rondelet, Rousselet Band, Rousselet de Rheims, Rousselet de Stuttgard, Rousselet royal, Royale d'hiver, St. Germain, St. Germain d'hiver panache, St. Germain gris allonge, St. Michael Archange, Seigneur, Seigneur d'Esperen, Serurier d'automne, Sentin, Simon Bouvier, Soldat labourer, Souvenir de Simon Bouvier, Supreme de Quimper, Suzette de Bavay, Theodore Van Mons, Triomphe de Jodoigne, Triomphe de Louvain, Van Assche, Vert longue, Van Mons, (L. le C.) Vesowziere and Virgalouse.

"Here you have 264 varieties, which we esteem as first rate fruit here (in Belgium,) [! Ed.;] and the number might have been increased by the addition of many more, thought by some to be quite equal to any I have enumerated. Among these, not a few are greatly influenced by culture, either on the quince or not. Indeed, some will not give satisfaction *unless* on quince roots, and some do *not* thrive on those roots at all. Many only flourish as espaliers; others, again, only as standards, and not a few may, in your country, prove unsatisfactory any way. The *Belle Henriette*, for instance, *if on the quince*, (and this is generally the case with other varieties on those roots,) must be *in a cool and moist soil*. If on *natural stocks*, the soil is to be *warm and rather dry*. The *Bergamotte Crassane d'Automne* wants a south aspect, if your soil is cold and stiff,—an east one, if warm and light. The *Beurré Diel* is good in all soils proper for the pear; and we shelter it from the southwest winds. The *Beurré Rance*

is only fine on the pear stock. Williams' Bon Chretien the same. The *Calabasse d'Hiver* good on either quince or pear."

I have derived much pleasure and profit from the reading of my correspondent's letter, although his long list of the *best* pears rather confounds my calculations previously made, and regarded as satisfactory to myself. Of a number of the pears named, I have no knowledge whatever; yet, they may *all* be of as fine quality as he thinks them, and worthy a trial with us. The amateur who is desirous of cultivating a select collection of this delicious fruit, is advised to take particular notice of every fine variety existing in his neighborhood. He will observe whether they are on the quince or natural stock, and their degree of productiveness in different aspects, and different soils. It is by such observations, in connection with a few general principles I shall mention, that he will be able to avoid much of the deception to which he is constantly exposed, and save much valuable time.

In most cases, a preference is to be given to trees *on quince roots*, because of their fertility, and the quality of their fruit. Yet, a difficulty unfortunately presents itself here, and it is not easily explained. The quince tree itself, in all soils, does well enough; but when grafted with many varieties of the pear, the latter does not do at all. No success whatever attends our trials. The union is, in spite of us, defective. This *may* be attributed to the routine and bad method of planting so generally adopted heretofore.

Some cultivators are in the habit of planting deeply, burying the graft several inches *beneath* the surface of the ground. Others, again, do just the reverse; the graft is as many inches *above* the ground. Both are wrong; for the graft should be *just even* with the surface. That is the true position, the only one that will answer in every instance of pear on quince, where the union is expected to be complete and productive. Besides, it is to be remembered that a cool and moist soil is required for *quince* roots, a rather warm, light and dry one for *pear*. By careless or improper grafting, too, much labor is thrown away. If the graft is too long, it becomes exhausting; if too short, no bearing wood is formed, and the too numerous shoots subsequently developed are mutually injurious, and bear no fruit.

Upon the natural, or pear stock, a deep and moderately rich soil is required. The tree is then more vigorous, but does not so soon produce its fruit; and its life is much more prolonged than if it were upon the quince. It is always best to graft the more delicate varieties upon the pear stock, as the growth will most likely be stronger, and better adapted to resist the force of strong winds.

I perceive that some of the names given by my correspondent are synonyms, and that quite a collection of fine varieties, known to our own cultivators, are not in his list. The best American fruits are never hastily introduced to European gardens and orchards; they do things better than ourselves in that particular, and some others, which I may attend to in another communication.

WM. W. VALK, M. D.

Flushing, L. I., Dec. 4, 1848.

A Practical Treatise on the Culture and Treatment of the Grape Vine. By J. Fisk Allen. Second edition, enlarged. Boston—Dutton & Wentworth. 1848. 8vo. 75 cts.

We noticed this work in our last volume, on its first appearance, as a pamphlet of 55 pages. We are gratified to find that the interest manifested in the subject, and the value put upon Mr. Allen's experience by the public, has been such that a second edition has been called for.

In fact, however, this second edition is almost a new work; having expanded from the size of a pamphlet to a respectable octavo of 247 pages,—illustrated with the necessary cuts, showing the training of vines, the construction of vineries, &c.

In the work, as it now appears, Mr. Allen has not only given us very fully the results of his own well grounded experience in the culture of the grape under glass, but, in order that his readers may have the whole subject placed before them, he has also given the opinions and practice of the most successful cultivators of the vine abroad.

After looking through the work, we confess by far the most valuable part of it, to American readers, for whose use the work is intended, is the account of the author's own practice. The difference between the climate of Europe and that of our northern states, is so great that, for the culture of the vine under glass, we need a code of rules especially adapted to our wants. A new theory is worth little in this matter. Only a person with the experience and skill acquired, as the author of this work has acquired them, can be fully able to give these rules; and while it is interesting to know what cultivators in other countries do, it is much more interesting to know what has been, and what should be done here to ensure success. This we think the reader of the work before us will be at no loss to discover, if he keeps before him the American practice, as pointed out by Mr. Allen.

The following items, which we gather from the work, will show some of the outlines of this experience.

The best form for a cold-house for foreign grapes is the spar-roof; for a forcing house, a lean-to roof is much preferable. Minute directions are given for the construction of both these forms of houses, both with and without a heating apparatus. The cost of a spar-roofed house, 80 feet long by 22 feet wide, at Salem, Mass., is $1,000, or $12.50 the running foot. For a lean-to house, without fire heat, the estimate (based on actual cost,) is $8 per running foot. Ten dollars the running foot, Mr. Allen states as "the lowest price at which a plain grapery, with a simple furnace, can be built, with the vines planted, and all complete." These are, we think, just estimates; though, in portions of the country where materials are cheaper, the cost will be less by 20 per cent.

Mr. Allen is clearly in favor of having the border *outside* of the house. He makes it three feet deep, (excavating two feet,) and composes it as follows: one-half loam, one-fourth bones, or other strong manure, one-eighth oyster shells, or lime and brick rubbish, and one-eighth rotten stable manure.

"I am willing to admit," says Mr. A., "that vines do as well when planted in an inside border, and when, as it is said, [alluding to the English practice,] they are well managed; but they require *more care* in watering, etc. I am not willing to ad-

low that they do better, and would never advise the rafter vines to be thus placed, unless they can roam at pleasure in the open border. When the vines are planted on the inside, the roots will grow with rapidity, and *push as straight as possible for the open border;* thus proving, that they prefer to be under the influence of the full effects of the sun, air, and rain upon the soil."

One pound of sulphur to every square foot of the house is dusted on the floor early in July, to prevent mildew.

Spur-pruning is decidedly preferred; and twenty pounds of fruit is the average annual crop which may be expected from five year old vines, well treated.

Selections of the best foreign varieties are given for the cold-house, the retarding-house, and the forcing-house. A brief description is also given of all the finest table grapes known, a larger number of which have, we believe, been proved by Mr. ALLEN, than by any other cultivator in the United States. We extract some account of a few rare sorts, which will interest grape growers who have not yet seen the work:

"*Chasselas Musque.*—Cracks badly; but when grown in a part of the grapery, where there is a free circulation of air, it does well in usual seasons.

"*Cannon Hall Muscat.*—Sets very badly; the berries are large and very handsome, and not so high flavored as the Muscat of Alexandria. A late variety."

"*Wilmot's New Black Hamburgh.*—Has proved fine. This has large, round, very black berries, with a hammered (flattened) appearance."

"*Pitmaston White Cluster.*—A very fine early variety; the bunch is of a medium size, the berries are round and compact. This is a very desirable variety. The *Scotch White Cluster* is the same as this, or very much like it."

"*Victoria Hamburgh.*—There is no doubt that this is an *improved* variety of the old Hamburgh."

"*Charlsworth Tokay.*—Excellent, with a muscat flavor. The Gardener's Chronicle for 1847, p. 624, says perhaps it is not different from the white muscat of Alexandria. The grape which is received from England under this name, is more like the White Frontignan, but one month later than that kind."

"*Palestine.*—The bunches of this variety are enormous, and the berries are oval, large and white; the shoulders or stems are very long, and the berries are in clusters at long intervals."

"*August Muscat.*—A very weak growing vine. It is undoubtedly the earliest grape grown, and will ripen its fruit when highly forced, in three months."

"*Red Chasselas.*—This is a good bearer, with a fine flavor; the berries are as large as the *Bar-Sur Aube.* This may be distinguished from the Rose or Violet Chasselas, by the singularity of the berries, which are colored from their first formation. At maturity, it is sometimes highly colored, but not unfrequently, is of a pale red. The young shoots are bright red."

"*Zinfindal.*—The branches are large, often with two shoulders on the same side, nearly as large as the main bunch. The berries are medium size, round, and very black, with a thick bloom; requires to hang several weeks after coloring, before it is ripe. I cannot find this grape described in any book."

"*Verdelho.*—This is a small, oval, white grape, of the finest quality. The vine is very strong grown, and bears great crops. It is a favorite variety for the table, as well as for wine, in Madeira and the Azores. It is a later grape than the Black Hamburgh."

"*Royal Muscadine.*—This grape, in respect to size, color, and flavor of the fruit, corresponds exactly with the *Chasselas de Bar-sur-Aube, Chasselas of Fontainebleau,* and the *Early White Muscadine* of the French, yet in the size of the bunch, it is quite distinct; the *Royal Muscadine* growing to a very large size, and having large shoulders, the bunches often weighing four, five and six pounds."

"*Bowker.*—This is a grape raised in the garden of JOEL BOWKER, Esq., of Salem, Mass., from the seed of the Bloom Raisin, imported from Malaga. It is a great bearer. Its fruit handsome, the bunch large, closely set, berries roundish, inclining to oval, white, and of a pleasant flavor, without any musk. It is quite as handsome as the *White Hamburgh*, and a better fruit."

Notices of a large number of other varieties, of more or less interest, are also given. We should gather, from Mr. ALLEN's select list, that the following are his *ten favorite sorts* for vine culture:

Black Hamburgh,	Pitmaston Whi. Cluster.
Wilmot's New do.	Royal Muscadine,
Victoria do.	Josling's St. Albans,
White Frontignan,	Golden Chasselas,
Grizzly Frontignan,	Rose Chasselas.

A considerable portion of the volume is also devoted to the cultivation of the native

grapes. In a large part of New-England the Isabella and Catawba grapes—which are so valuable for their productiveness, and hardiness, and easy culture, in the middle and eastern states—are almost worthless. We have even tasted Isabellas, grown on a south wall near Boston, so poor and insipid that we should never have recognized them as the same saccharine (though still somewhat pulpy) fruit we cultivate near N. Y.

These native grapes, indeed, require our warm sun, and a long summer, to bring out their full flavor. Their culture has already become of considerable importance in many parts of the Union. Especially on the Hudson for the table, and on the Ohio for wine, large vineyards already exist, and more are every year being planted.

The best modes of pruning the native vine are given at length in this work; and they are followed by interesting details of vineyard culture, from some of our most successful *vignerons*,—Mr. CLEVELAND, of N. J., Mr. GOODWIN, of Ky., Dr. UNDERHILL, of N. Y., etc.

The multiplication, in the neighborhood of all our large cities, of glass structures for the culture of the foreign grape, shows the interest in this subject among the wealthier portions of horticulturists, and the facility with which the finest varieties, in this latitude at least, can be produced, without fire heat, is now so well established that immense quantities are now regularly grown for the supply of the markets of New-York, Boston and Philadelphia. In these two latter cities, indeed, Black Hamburgh and other fine sorts grown under glass, were sold last season at lower prices than fruit of the same quality is ever afforded in England, or the north of Europe; and many *tons* of them were sold in New-York alone.

This work of Mr. ALLEN'S, presenting, as it does, the experience of one of the best practical grape-growers in the United States, must become the hand-book and guide of every cultivator among us, who is desirous of informing himself fully upon the subject.

FOREIGN NOTICES.

AN AGRICULTURAL CONGRESS.—An Agricultural Congress, composed of more than 300 gentlemen, interested in agriculture, and sent as deputies from different parts of the country, sat in Paris last year, for a fortnight, to discuss practical questions in agriculture, and likewise political questions bearing upon it, which was done with great ability. At Poissy, the minister of agriculture distributed premiums of large amount, and many circumstances indicated an active, an increased, and increasing attention to this great subject. *Colman's Report, No.* ix and x.

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AGRICULTURAL COLONY AT METTRAY.—There are other institutions for agricultural education in France, which I visited with great interest, a notice of one of which, will not, I hope, be unacceptable; the one at Mettray, near Tows, about 150 miles from Paris. The colony at Mettray, was founded in the spirit of the good Samaritan, which succors the wounded and forsaken traveller by the way-side, takes him home, and there nourishes and cherishes him. This establishment grew out of the compassion of two gentlemen of high rank and fortune, who were moved to essay what could be done for the rescue of the unfortunate, condemned, and vagabond boys, to save them if possible from destruction, and give them the power of obtaining an honest living. It is not consistent with my plan, in this place, to go further into the account of the institution, than as a school of agriculture, though the directors propose three objects of instruction; to qualify their pupils for farmers, sailors, or soldiers. The discipline of the establishment is a military one. They have a full-rigged ship, of ample size, in the yard, that the boys designed for naval life, may here take their first practical lessons; and they have a well stocked farm of 500 acres, which is under direction to be cultivated by the pupils. The institution is situated in a healthy part of the country, and near a large market town. They employ an educated

and experienced agriculturist, as director of the farm. The first object is to render it productive, that it may go as far as it can be made to go, towards defraying the expenses of the institution. The second, to instruct the boys in the best and most improved methods of husbandry.

The institution had its foundation in private subscription, and though in its commencement it had many difficulties to struggle with, it has now a firm establishment. (The VICOMPTE DE COURTEILLES gave a large estate, and M. DE METZ, a distinguished philanthropist and a royal counsellor, besides sacrificing his (then) high position at court, lives among the children, and gives, the greatest of all charities, his whole time, his hand, his head, and heart, entirely to this object.)

Besides a farm, there are connected with this institution, a large garden, an extensive nursery, and a manufactory for the manufacture of all the implements, carriages, &c., which are used on the farm. The boys are likewise employed in the making of shoes, caps, clothes and bedding, which are required, and many fancy articles which serve for sale, and give them occupation when by any circumstances they are prevented from out-door labor. The number of pupils is at present 450. It is not intended to keep them after they are sixteen, but they are willing to receive them at the earliest convenient age. I saw several not more than six or seven years old. They live in families of forty or fifty,—separate houses, under the care of a respectable man and his wife, who give them their whole time. This seemed to me a most judicious provision. They have a gardener with them in the fields, who always works with them. Many of them have been condemned at courts of justice for some petty offence, and many of them orphans and friendless, have been taken up in the streets in a condition of miserable vagabondage. The discipline of the institution is altogether moral and paternal. Confinement, abstinence, solitude and disgrace, constitute the chief punishments; but there are no whips, nor blows, nor chains. It has been so far eminently successful. A boy, who had been early familiar with punishments and prisons, and now for some time a resident of Mettray, was asked, why he did not run away from Mettray. His memorable answer was, "because there are no bolts nor bars to prevent me."

I should add, that there is connected with the institution, a hospital, which was a model of cleanliness, good ventilation, and careful attendance; all the services of which are rendered by those indefatigable orders of good, the sisters of charity. *Ibid.*

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PYRAMIDAL PEAR TREES ON QUINCE STOCKS.—Having many months ago read in the *Chronicle*, some remarks in disapprobation of Mr. River's Pyramidal Pear trees on Quince stocks, stating, among other objections, that they were stunted unhealthy trees, and that neither good nor handsome fruit could be expected from them, I beg to forward you the size of a few I have just gathered from trees received from the Sawbridgeworth nursery, only 10 months ago; and I can also affirm that the fruit is remarkably handsome, and appears to be beautifully ripened. My belief is that the wood and leaves of several of these trees would not weigh so much as the fruit they have produced. I must also add that they are highly ornamental, and being perfectly upright, are capable of supporting a very heavy crop in proportion to their size; the leaves are large, and of a fine dark green, showing perfect health; nevertheless the growth has been moderate, and they are now full of blossom-buds; in a few years I am confident they will yield a very considerable supply of fine fruit, and from their very pyramidal form will cause scarcely any injury to the garden.

The management these trees require is evident and easily performed; undoubtedly they must be watched, but who can possess these beautiful trees and deny himself the pleasure of watching them? When we have a full grown Pear tree of the height, perhaps of 30 feet, and in full bearing, it may be said there is a balance between the roots and the leaves; in other words the roots are only strong and numerous enough to produce leaves and blossom-buds and fruit, but no additional shoots; on the other hand, every young tree has a tendency to produce more roots than are sufficient to maintain it in a dwarfish form and fruitful state, and if these roots remain undisturbed the shoots will grow vigorously and require severe pruning, and the fruit-buds will of course proportionately decrease; and as the growth depends entirely upon the quantity of matured leaves, it follows, if we want a dwarf tree, we must, as soon as it has reached the required size, limit the number of leaves to that point at which the roots will not stimulate the tree to produce injurious growth.

On the above principle, remove every leaf on every shoot down to the point to which you propose to prune, and as soon as it can be done without danger to the blossom-buds, cut these shoots all away, and in winter, root-prune; but if you have had no occasion to leaf-prune, you will also have no occasion to root-prune in the winter; and if the tree is as large as you wish it to be, well-shaped, and has fine leaves and good friut, it is perfect. On the other hand, if you have neglected root-pruning where it was needed in the winter, and have permitted, by way of safety to the blossom-buds, the terminal shoots to grow all through the summer, the tree will become so vigorous, and a habit of rank growth will have been so thoroughly established, that the tree must be half killed by excessive root pruning to reduce it to a disposition to produce spurs instead of shoots, and then disease, small leaves, and bad fruit, as named by the writer alluded to, may very likely follow. If leaf-pruning is not liked, nip off every shoot as soon as it reaches the allotted limit; if it shoots again, nip it off one leaf beyond this point, and repeat this until it

ceases to grow; this will not injure the blossom buds, provided the tree has been duly root pruned; in the winter cut the shoot back just beyond the point at which it was first nipped. Let the trees be well mulched, and also well watered through the spring, and the fruit will set well and grow large; towards autumn draw away the mulching and withhold water, and the fruit will ripen perfectly on the latest sorts and be good flavored, and the buds will be plump and bold for the next season. As soon as a tree has acquired the size determined upon, if root pruning be properly performed, it will require scarcely any leaf pruning, or nipping, or winter pruning.

In the early management of these trees, I prefer constantly taking off the leaves to shortening the shoots; I have this year brought a Crassane Pear of 30 years' growth, and which never produced a tenth part of a crop, into the most promising state as respects blossom buds, merely by leaving all the spring-produced fore-right shoots, and taking all the leaves from them; the leaves on the spurs are unusually large, but not a single summer shoot has been produced. I should also state that this tree has been pruned in various ways, sometimes by removing all the fore-right shoots, sometimes by leaving them all on, and at other times by breaking them down and letting them hang, and again by removing half and shortening the other half in July, and removing entirely in winter; but in all these various modes, summer shoots, so destructive to blossom-buds, have been produced from the spurs, and leaf-pruning has cured this apparently incurable evil.

Circumference of the Pears.

Napoleon	9	in. by	8	Jalvie	9	in. by	8
De Cure	10	"	8	Buerre d'Aremberg,	8½	"	8
Passe Colmar							
Dore	7½	"	7	Gratioli of Jersey	9	"	8½
" " Gris	7½	"	7	Louise Bonne of Jersey	9	"	7½
St. Germain	7	"	6				
Doyenne Goubalt	7½	"	7	Buerre d'Amalis	9½	"	8½
Easter Buerre	10	"	8½	Buerre Capiaumont	8½	"	7
Colmar d'Aremberg	10½	"	10½	Thompson's	7½	"	7½

The Easter Beurre, is the only tree not planted last autumn. *Y. Gard. Chron.*

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HARDINESS OF THE CAMELLIA.—Is the Camellia a green-house plant? This is a question which may very properly be asked, now that the nature of plants is better understood than it was twenty years ago. The majority of our readers will of course answer the question in the affirmative; let us see whether the evidence justifies their opinion.

In many parts of England—near London, for example—the Camellia lives out of doors without protection through very severe winters, and retains the most robust health. In the hard winter of 1837-8, it bore without shelter a temperature of 0° Fahr., or 32 degrees of frost; and in several places it passed through a cold of 6 degrees, 9 degrees, 12 degrees, 14 degrees Fahr., without damage. In that winter, Camellias lived in the Horticultural Gardens in 4-inch brick pits covered with mats, through a cold of 4½ degrees below zero; in other words, they sustained 36½ of frost, with only such a shelter as thin brick walls, a glass sash, and a few mats could give them. One of them was *Camellia reticulata*, which still retains the place it occupied in 1837-8, and no plant can possibly be in higher health, or flower more gloriously.

If we look at the climate in which the Camellia grows wild, and becomes a large tree, we find that it is placed by nature in the midst of rigorous winters. Japan is its fatherland. In Japan, THUNBERG assures us that the cold is intense, snow falling, water freezing, and the thermometer dropping to many degrees below the freezing point, even in the warmest provinces. (*Sic etiam frigus hiemale, ad plures gradus infra punctum congelationis, intensum admodum est, imprimis cum ventibus e borea et orienti venientibus. Hieme et aqua congelatur in glaciem et nix cadit, etiam in regionibus meridionalibus.*)

The Camellia bush is also cultivated all over those parts of China which Europeans have visited. The climate of Shanghai, N. lat. 31 degrees 24 minutes, may be taken to represent that of the south of Japan, rendered however a little more rigorous by its continental position; at that place, we learn from Mr. BALL, that in the winter of 1845-6, the Woosung river was sufficiently frozen to afford the English an opportunity of indulging in the amusement of skating. It further appears that "snow will occasionally lie on the extensive alluvial plain of Shanghai for 10 days together, and more than a foot deep." It is not an inference, then, but a fact, that "a remarkable agreement exists between the temperature of Shanghai and the port of Nagasaki, in Japan." We may take this to show the winter climate of the birthplace of the Camellia, and of the adjoining countries; but the whole district in China in which the shrub is cultivated for ornament is far more rigorous than gardeners suppose, who look upon China as a country much more temperate than Great Britain, seeing that rice is grown in the fields, and stove plants in some sheltered valleys. Extracts from Mr. BALL'S valuable work * tell a very different tale.

At Canton "it is not an exaggeration to say that every year the rice fields in the neighborhood are frozen for a few days, and that ice the thickness of a crown piece, is occasionally seen carried through the streets for sale. From the middle of December to the end of March, Europeans are clad in their winter garments, and their houses are furnished with carpets, curtains, and fires. Nor is the thermometer a correct index of the intensity of the cold, as regards our sensations, owing to the force and dryness of the wind."

"In the green tea country, situated in the district of Whey-chew-fu, N. L. 29 degrees 58

* "An account of the Cultivation and Manufacture of Tea in China," 8 vo., Longman's.

minutes 30 seconds, in the province of Kiang-nan, the northern winds begin to prevail, the Chinese say, in September. In October, persons in easy circumstances begin to clothe themselves in their fur dresses; and in November the winter (or rather, perhaps, the N. E. monsoon) regularly sets in; when the young Tea shrubs are said to be bound round with wisps of straw, to prevent them from being broken or injured by the wind and snow which falls in the winter season. The severity of winter, however, is not felt before December. From this time until March, the weather continues cold; frost frequently prevails, and snow occasionally; water freezes in the house; but the Chinese houses are badly put together; windows and doors are roughly fitted; in fact, they are built for hot weather, not for cold. The Chinese defend themselves against cold by an additional quantity and different quality of clothing; their houses being thus much exposed to every change of temperature, a little tea accidentally left in a tea-cup over night in any of the rooms, will occasionally be found frozen in the morning."

"The Bohea country, in Fokien, differs little from the Hyson district in point of temperature. The tea men describe the cold as less severe; and the fall of snow as well as the thickness of the ice, as somewhat less. Indeed, it is a mountainous district, with sheltered valleys, fenced in and protected from cold north-easterly and north-westerly winds by the lofty and continuous range of mountains which forms the barrier between this province and those of Chekiang and Kiangsee. December and January are considered the coldest months. It is said that the Kieu-kiokee, a shallow stream which winds about the Bohea mountains, is annually frozen over. Here vagrants are seen ranging themselves along the most frequented parts, begging alms, and exciting the compassion of passengers by strewing paddy-husk on the ice, to prevent slipping."

In the east of Fokien, Father Carpina, long resident there, assured Mr. Ball that "the Tea shrubs were neither injured nor the harvest retarded by the cold of 1815, notwithstanding there fell in the month of February four spans, (about 33 inches English,) of snow in Fo-gan, lat. 27 degrees, 4 minutes, 48 seconds, and six spans in Ning-te; so that the covers to the Indigo plants, strongly fixed to protect them from the frost, sun, and wind, gave way under the weight of the snow. At the close of the same year, about the middle of December, some days of severe cold and frost occurred. Upon one occasion, about 3 o'clock in the afternoon, on a beautiful sunshiny day," he observes, "I saw two boys, each with a piece of ice the size of a coach window, and an inch in thickness, which they had taken out of the fields in the neighborhood. I also observed, on the 24th January, of the present year, (1816,) the surface of the water in the Mo-yang was frozen, breaking and flying about like glass to the stroke of the oar. The volume of water in this river is equal to that of the Guadalquiver, at the passage of Cordova. It freezes in these parts very often."

Many other statements to the same effect might be quoted, but these suffice. They show conclusively that the Camellia is found wild in a country with rigorous winters, and is cultivated in another in which the severity of the season is greater, rather than less.

If we look at the plants which we have in our gardens from the country of the Camellia, they will be found to be among the most hardy exotics which we possess. Cydonia (*alias* Pyrus) Japonica, Wistaria (*alias* Glycine)) sinensis, Cryptomeria, the Moutan, Weigela, Forsythia, Chimonanthus—who has seen them hurt by English frosts? Thus it appears that the companions of the Camellia, in its own woods, have no such tenderness of constitution as to demand a green-house.

Is the Camellia, then, a green-house plant? We shall endeavor to find an answer to the question in our next week's publication.—*Gard. Chron.*

[The Camellia has been kept through the winter in a cold pit, here, and perhaps will prove hardy at Baltimore. Near Charleston, S. C., there are specimens growing in the open garden, 20 feet high.—Ed. Hort.]

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Lime vs. Insects.—I beg to assure your correspondent that lime may be applied with the most perfect safety to his trees, shrubs, &c.; and will also prove certain destruction to the slug tribe. With respect to the quantity, that must depend on the nature of the soil. In April last, having then recently obtained possession of a garden, &c., that had been greatly neglected, and was overrun with slugs, I spread quick lime over the whole, (vegetables, shrubs, grass, and orchard,) at the rate of about 80 bushels to the acre, so that all through that month we appeared to be in the midst of winter, with the ground covered with snow, even the evergreens being white. The result was, that not a slug was seen till the rains of October, and but very few then. The vegetables have been pretty good, and the growth and vigour of the evergreens have been quite remarkable. The soil is clay. February would be a very good time to lay on the lime. *E. S. Gard. Chron.*

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Sale of Deodars.—About 4000 plants, from seed, of this fine Conifer, were sold by Mr. Stevens yesterday. They fetched, on an average, £7 per 100 plants, of from 1½ to 2 feet in height. —*Gard. Chron., Nov.* 18.

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Russian Method of Training Apple, Cherry, and Plum Trees, by Mr. Joseph Busch.—The severity of the winter at St. Petersburg is so great that few fruit trees will survive it, even with careful matting; to prevent the loss which is thus usually sustained, I have for more than twenty

years pursued a mode of training which has been attended with complete success. It consists in leading the branches of the trees on horizontal trellises only ten or twelve inches from the ground. When the winter sets in, there are heavy falls of snow; and as the frost increases, the snow generally augments, by which the trees are entirely buried, and receive no injury from the most intense frost. The winters of 1819 and 1820 were very severe, notwithstanding which, last summer, I had a great crop of apples, and all of the tender sorts, while none of the gardens in the neighborhood produced any; even many of their trees, although doubly matted, were killed. From my Green Gage and Orleans Plums I gathered ripe fruit on the 29th September last; I had also a very full crop of Morello Cherries. Another very great advantage of training trees in the above method consists in the growth of the wood, it being of equal strength, and the fruit produced being all alike, the bloom comes out much earlier, and the crop ripens sooner. The trees are always clean and free from insects; I have observed this even while some standards near them have had their leaves curled by aphides. The only cherry that does not succeed in this way is our Black-heart; this I attribute to the damps which affect the early blossoms, but in a milder climate this injury would be obviated by placing the trellis higher from the ground. When the trellis decays under the apples, I never renew it, as the trees always keep (from the strength of their branches) their horizontal position. There are other advantages of treating fruit trees in this manner: they come sooner into bearing, and their fruit is not affected by high winds. I never gather the apples, but let them drop off, for the distance they fall is not sufficient to bruise them. Probably pears trained in this way would answer well in England. *Hort. Magazine.*

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THE FORCING OF GRAPES.—Supposing a house devoted to grapes, and we were desirous of having several seasons of fruit, there is nothing more simple than the required management. But it should always be remembered that the same plant should always be forced in the same degree, and by such means it is never cheated of its season of rest. We are not going now to describe a thing actually carried out, but contrary to our general mode of doing things, we are starting a theory to explain a practice that we have adopted at separate periods, but which we have never fully developed in one house. The grape we have chosen for our experiment is the Black Hamburg, a grape that is a universal favorite, not less for its beauty than its flavor. Plant as many vines to your house as you have rafters to the roof; grow but one branch to each rafter; construct your house so that you can withdraw this branch from the inside, and keep it for a while outside whenever you please. This branch has to be renewed every year, so that, inside the house you have the branch which has fruit, and the shoot which is going to supply its place next year growing by the side of it. Now, the regulation of the seasons for the different grapes may be thus planned:—Plant the vines outside, and contrive to take them into the house close under the roof, by leaving out one pane of glass, and providing some means of stopping up the vacancy round the stem when it is in; the same vacancy will enable you to draw out the vine whenever you wish it. Say one-third of the vines are put in the house at Michaelmas, one-third in January, one-third in May; keep the house up to forcing heat always; as soon as the single shoot of the Michaelmas vine has grown fully to the length of the rafters, top it, and when the leaves turn, draw it out of the house through the vacant space left for it (and only temporarily filled up to keep the air out,) and there let its wood ripen. In like manner, when the vines taken into the house in January are in the same state, that is to say, the shoots have grown the length of the rafters, top them, and when their leaves turn, draw the shoots out of the house. So also with the third lot put in, in May. Replace them in the house at a proper season, that is to say, the same time as the previous year. There may be bunches of grapes on the vines when the side shoot intended to bear the next year is withdrawn, but this need not be disturbed until the grapes are off, when the vine may be cut away to just above the shoot. It may, however, be necessary to disturb the bearing part before you can draw out the young branch. This will not matter if half of it were drawn out, so that the part which had the grapes on were inside; and if there were any half way up, it is clear that the vine might be dragged half way out before it would withdraw any grapes. This is mentioned because many people keep the grapes hanging as long as they can; and it will not interfere with the bearing branch for the next year if they do so. The contrivance for withdrawing the vine is not new, but very few practice it where they can afford to keep separate houses for the different seasons; when, however, you have but one house, and wish the grapes to come at different seasons, this is the only way that we know of. As soon as the grapes are off, you may either draw the fruiting part out, and cut it off at the time you put the new branch in, or you may cut it off directly. It is to be observed, that the great object is to be exact with the several seasons of returning the new branch to the house; and the temperature of the house must never materially vary, except when the sun is powerful and raises the temperature more than usual, but these are the times to give air. Nothing need be done to the branch when returned to the house but laying it along the rafter by means of staples, and cords or wires; the treatment in other respects the same as usual. Here will be three seasons of grapes, lasting nearly the whole year in perfection. *Hort. Magazine.*

DOMESTIC NOTICES.

Fall Pippins.—We received from Messrs. Bissel & Hooker, of Rochester, N. Y., a box of these apples, asking an opinion of their true name, and stating that they bear the name of "Holland Pippin," in Western New York.

The Holland Pippin, though considerably resembling this apple in the growth of the tree, and size and shape of the fruit, is a totally distinct apple from the Fall pippin. In fact, while the Fall pippin is one of the best autumn table apples, (at least in this district,) the Holland pippin is of very inferior quality for the dessert, and is, in fact, only a *cooking* apple. As a kitchen fruit, however, it is one of the most valuable *summer* fruits we know—for it bears regularly and well, comes into use at the beginning of August, and continues fit for pies, tarts, and sauce, *until* October, when the Fall pippin *begins* to ripen. The Holland pippin is fit for use while the skin is quite green, but the Fall pippin, not until it turns quite yellow. Finally, the stalk of the Holland pippin is short, and set in a wide cavity, while that of the Fall pippin is large, and set in a cavity often narrow, and comparatively shallow. With these points of difference, these two apples ought not to be confounded.

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St. Martin's Quetsche.—This German Plum proves to be one of the most valuable late varieties yet introduced from abroad. It has borne in two or three gardens on the Hudson, and we have a tree four feet in height in our fruit garden, every branch of which, this season, was so literally loaded with its beautiful bright yellow fruit, (notwithstanding that it was also making a vigorous growth,) that it was quite a spectacle to gaze at. The fruit ripens about the middle of October, and keeps a long while. Its flavor is excellent, and it will undoubtedly be a profitable sort to grow for market.

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Wintering Plants in Pits.—*Dear Sir:* A good many of your readers, who like myself, cannot afford to have a green-house, and yet want to grow a great many exotics, such as *Verbenas, Scarlet Geraniums, Petunias*, &c., for ornamenting their gardens in summer, may not be aware how cheaply the matter may be done by means of a *pit*.

A "pit," on any rough way, is nothing more than a long hot-bed frame, made of strong rough plank, and sunk nearly level with the surface of the ground—or nearly level at the front, and about 6 inches above it at the rear, so as throw off the water. Mine is sunk 2½ feet deep. In the first place the soil should all be dug out, of the size of the frame, and about a foot deeper than you mean to have it inside. This foot must be filled up with small stones to make the floor perfectly dry; and if the spot is at all damp, there ought to be a small drain, also filled with stones, leading away from it. Over the stones in the bottom of the pit, put a foot or more of coal ashes, to form a dry floor for the pots. When you have sunk the frame, it should be filled up all round it with dry tan, or what is still better, with square pieces of turf, such as is used for fuel. This lining is a better non-conductor than the soil, and you should heap it up, on the outside, quite level with the edge of the frame all round. There ought to be *double* sashes to cover the frame, with a space of about 8 inches between them, to make it secure against all possibility of frost. (The outside sashes will do for hot-beds in spring.) In all fine, mild days in winter, I open the lights and give air freely, so long as there is no frost. At night, and in cold and stormy days, I cover the lights with five or six thicknesses of mats, (or a thick coat of straw.) In this way I succeed in keeping, not only the plants I have named, but also Camellias, Oranges, and almost all the finer green-house plants, in perfect health and beauty. I water very sparingly—often not for many days together, in winter. *An Original Subscriber. Brooklyn, N. Y., Nov.* 1848.

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Worcester Horticultural Society.—We find by the report of Mr. Jacques, that this, one of the most flourishing societies in Massachusetts, made an annual exhibition of which its members may justly be proud. The soil and position of Worcester are such, that a great variety of fruits are cultivated in high perfection there—and in apples especially, the exhibitions held there, are richer than those of any society in New England. The largest and best collection of pears, (29 varieties,) was shown by J. M. Earle, President of the Society. The largest collection of apples, (43 varieties,) by Samuel Colton, (who also exhibited 27 varieties of pears, 15 varieties of peaches, and 7 of Plums.) The premium for the *best* collection of apples was awarded to Wm. C. Capron. Geo. Jacques exhibited 23 varieties of apples, 7 varieties of pears, 8 varieties of peaches. Among the other leading contributors, were B. F. Thomas, Silas Allen, Peter Fay, D. W. Lincoln, Joel Knapp, Hon. Levi Lincoln, &c.

Among the fruits particularly noticed by the committee, we observe an old favorite of ours, the *Brevoort* peach, shown by Mr. Messenger, of which the committee say, "one of the highest flavored and most delicious of all peaches." Specimens of *Flemish Beauty* took the first premium among the pears exhibited, and *Louise Bonne de Jersey*, the second. *Hubbardston Nonsuch*, took the first premium among apples. We copy also the following note by the committee, on *Leland's Pippin:* "This is one of the handsomest apples we ever saw. Color on the shady side, a greenish yellow ground, mottled with crimson stripes; on the sunny side, becoming a dark crimson. Size

and form, not very different from the Baldwin. The flavor is also most excellent, and a tree of this variety deserves a place in the smallest collection. Season, October to winter."

Dr. Workman exhibited magnificent specimens of St. Michael (*White Doyenne*,) pears, grown on *quince stocks*—"under which mode of culture this fine old variety retains its ancient reputation."

More than three thousand visitors attended the exhibition. The hall was most tastefully decorated by the ladies of Worcester.

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Water in Level Countries.—*Dear Sir:* A constant supply of running water, whether for the ornamental gardener or farmer, is a desideratum to be sought by every possible means. Its beauty in the hands of the one, and its utility in the hands of the other, are qualities too obvious to require comment. The great point to be attained, is a reservoir, at a sufficient elevation to supply the premises, so that the kitchen, the bath, the fountain, the garden, or the pasture, may be furnished with a living stream. In many localities, Nature has made her own arrangements for this supply. Where the mountain or hill-side sends forth its gushing *jet d'eau*, she has required of man only such simple apparatus as the first impression would suggest for conducting it to the point desired; but she has left him to seek out many inventions whereby to give this indispensable element an *upward* current, where she has failed to furnish a *downward*.

Primitive hydraulics as far as we are informed by the records of the olden time, furnished only the pitcher and the watering trough, or such like apparatus. The bucket and windlass succeeded, and we have them yet, as well as other more complicated labor-saving machines. Where there are springs or running brooks, too low for a fountain head, the Water Ram, described in the Horticulturist for August, 1847, is doubtless the simplest, cheapest, and best machine yet invented, by which a running stream may be made to perform the labor of raising itself to the desired elevation. But I am writing for the West, an immense ambit of *level country*, whose gentle elevations and broad fertile prairies furnish thousands of eligible sites, and hundreds of thousands of acres of valuable land, without any constant supply of running water from spring or brook. I do not mean to say we have not fine springs and running brooks. We have, and none better; but not as in a country of hills and mountains; for we have not their numerous elevations to catch from every passing cloud, and concentrate through their numberless veins, the material for their supply.

Our main dependence is, and must be, upon wells and cisterns; and although a cistern *may* be located in the top of a carriage house, or other out-building, yet such an arrangement, besides furnishing, necessarily, a very limited supply, is but an indifferent substitute for a running stream. Nor can it ever come into general use, particularly, where a sufficiency for irrigation and "*Stock Water*" (as we out west here, call the supply of the pasture,) is needed. As wells and cisterns below the common level are to furnish us water, the question which now interests us is, How is it to be brought to the required elevation? True, we have many a blooming Rachel, and not a few Jacobs, who would willingly assist them in drawing water for their flocks; but we would gladly relieve them of that burden, trusting that they will be at no loss in drawing sympathy from other fountains than the well, and by other means than the rope and bucket.

The common suction pump, if the required elevation is not beyond the atmospheric pressure, and the forcing pump, if it is, are apparently the best adapted to the end in view, of anything now in use; but what power shall be applied? From what is said above, you are perhaps looking for an answer to this query. No such thing. It is easy to ask questions, but to answer them truly and intelligibly, is a different affair. However, since I am asking questions, I may as well push my inquiries a little further, hoping that you, or some of your intelligent correspondents may be able to throw some light upon the subject. How far can electro-magnetism be applied to the propulsion of machinery? Could not a very simple apparatus be constructed, to be propelled by that motive power, that would supply the place of the steam engine, in driving a small forcing pump, which would require but little attention, save at least one man's labor, and give a small but regular and constant supply of water?

I am aware that this inquiry brings us upon troublesome grouud; but it is the business of the intelligent cultivator to remove stumps, stones, and other obstructions, which have long encumbered the surface of our good mother earth, and he must now and then tug at those which science has dug up and left in the road, before he can plough a straight furrow.

Admitting that a rotary motion can be produced by electro-magnetism, the next question is, what will it cost? If we run a parallel between this and steam, the inquiry, it is said, involves the question of chemical equivalents. I am not sure that it does. Prof. Liebig states the proposition thus: The oxidation of zinc, is but another name for burning it (for example) under a steam boiler. Then, which will produce the greatest motive power, the price of a given quantity of zinc or coal? If this be the only true stating of the question, it is an end of the matter, and my suggestions about applying this power to a forcing pump are not worth the time it will take to read them; for, according to the same author, six pounds weight of zinc, in combining with oxygen, will develop no more heat than one pound of coal. Is there no way of getting by the steam engine, that is, in the cost of the motive power?

Few men, I presume, living at a distance from

city water-works, would think of furnishing their country seats or farms with a constant supply of running water by means of the steam engine. I do not know how long this may be said, in this high pressure age of improvements; but I speak of the present. I have been thinking upon the subject, and hoping, rather than expecting, that experiments might demonstrate that the battery could be substituted for the boiler, and, at least the expense of an engineer and fuel saved. The question may have been examined, and may be familiar to you. If so, you would doubtless confer a favor upon many who are alike uninformed with myself by giving the result of your experience and observation. If this can be accomplished somewhat in the manner I have suggested, or in any other way, as easily attainable, what a change would be effected in this and many similar localities! Water, the "River of Life," to every vegetable, thus easily raised from our deepest wells, might be carried to an elevated tank or reservoir, which like the lake in the vision of Ortugral, the supply, though slow, yet constant, would keep always full. We shall then have accomplished what nature would have done for us, had she given us a mountain stream, or bubbling brook. Our country seats will be supplied with one of the rarest beauties, whereof they are now deprived, and many a cooling stream will gladden the dry and thirsty land. Yours, truly, S. B. G. *Terra Haute, Indiana, Dec.* 1, 1848.

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The Original Seckel Pear Tree.—Yesterday, in company with my friend Dr. Emerson, I visited, for the first time, the original Seckel pear tree. Dr. E. has long been familiar with this tree, and very kindly offered to take me to it. It was pointed out to him, many years ago, by Geo. Shaeff, Esq., who owns much property in its immediate vicinity. This venerable tree stands in a meadow in Passyunk township, less than a quarter of a mile from the Delaware river, opposite to League Island, not more than half a mile from the mouth of the Schuylkill, and about three and a half miles from the city of Philadelphia. The property on which it stands, is a portion of the Girard estate, and now belongs to the city. It is one of the largest Seckel pear trees I have ever seen, measuring more than *six feet in circumference*, one foot above the ground, and four feet nine inches in circumference higher up. It is about thirty feet high. The head of the tree has the usual rounded appearance so characteristic of this variety, and is in good condition. The trunk, to the height of six feet, is very much decayed on its south-western side. The bark half way around the trunk is entirely gone, together with a great portion of the wood itself, leaving a large hollow in the tree. Such being the decayed condition of the trunk, it is greatly to be feared that the tree will not be able to stand the blasts of many more winters. No artificial support having been afforded to enable it to resist the dreaded effects of the stormy winds, nature herself is making an effort to provide for the anticipated disaster by throwing up shoots from the trunk, an inch or two above the surface of the earth. But the tree stands on grazing ground, and unless protected by an enclosure, the effort will prove a vain one. From these shoots I cut several scions, for the purpose of ascertaining whether or not the tree had been worked above this point; it is scarcely to be presumed it had been done below it. Some of these scions I now send you to experiment with. I also send some scions cut from the branches of the tree. Very sincerely, yours, *W. D. Brinckle. Philadelphia, Nov.* 2, 1848.

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Public Parks and Gardens.—*Mr. Editor:* Could any effort on my part aid you, in even a remote degree, towards bringing about such a state of feeling as would lead to the end contemplated by your leader on *Public Parks and Gardens*, in your October number, most gladly would it be given. But living in the country, in a new, and to you, remote portion of it, and being too much unknown to have any influence, I can only as one of your subscribers give you "aid and comfort," by assuring you that there is one in the land who goes with you heart and hand.

I have seen a great deal of men, and I have all my life observed, that the *birth-place* had an important bearing on after conduct, and I might also say, with after usefulness. Men born and educated where there was some attention paid to culture of fruits and flowers, where there was fine scenery and a bountiful nature, always speak of their homes with so much fondness. They refer to beautiful landscapes, to their play-grounds, to even the "moss-covered bucket," with so great a love, that I have oftentimes thought a little labor and money expended in ornament, was more than paid by the delightful recollections of home in after life.

So great an effect have these things had upon my mind, that many years ago, I made every endeavor to have one of our interior villages ornamented by planting trees, making lawns, laying out walks, placing seats, &c., &c., but with no effect. In another I tried to have the village burying-ground improved handsomely. In another I offered for my conditions, a liberal aid to have a neatly laid off and ornamented burying-ground, where the widow's friend, and the distressed brother's friend might offer to the wayfarer a last resting place. Failing in all, I resolved, though too poor to do it well, to ornament my own little cot, and thus endear at least one to "home, sweet home."

I frankly admit that the party in the ascendant in these United States, would be foremost in crying out against squandering the people's money, in putting anything in Washington city, much less in New-York or Boston, that would be merely orna-

mental. Yet I, for one of that party, believe a nation that is advancing like ours, should by all means have a large garden, grounds, hot-houses, conservatories, &c., in Washington city. But without the nation's help, it seems to me, that New-York city alone, can by *contribution*, collect enough to try and establish a *real* public park, and keep the grounds in magnificent order. I am sure that the citizens of Philadelphia, with even the improvements they have, can estimate what they might enjoy if the thing was carried out, as in German public parks and gardens. Well do I remember, years gone by, when youth and the world were both brighter, strolling through one of the public squares in Philadelphia, the finest still in the Union, and enjoying to the utmost the varied beauty—the hundreds of human beings who found recreation and health there, as well as the varied and beautiful trees. Old and infirm as I am, I would give more to be seated on one of those seats, where I could see the nurse, with a sweet cherub in her arms; the youth with his hoop and stick; the fair young maiden, with her bright and elastic step—all made happier and better for this breath of rural life in the midst of brick houses. I say I would give more to hear and see such a sight, than Ole Bull, Hertz, or all the fiddle-strings in the world. Our creator, in painting the beautiful in such an attractive garb, certainly intended we should enjoy it. And why should citizens of our towns and cities, not have this enjoyment. Upon my life, I believe handsome public grounds, with music, would have the happiest influence in allaying riots and debauchery, crime and secret vices. The workman must have recreation. The rich had better give it than to pay for prisons and penitentiaries. I place it on the score of economy alone; and I put the question to every man. Do you know of your own knowledge where the New England man, that was *raised* in one of those neat and orderly and tasteful villages, ever cost the town to which he removed, or the country that he made his home, one dime, either as a support needed by drunkenness or laziness, or for prison or jail fees? I have noted that those born and raised in one of those sweet villages, was too proud to remain poor, or to do a mean act. I am sincerely yours. *A Mississippi Reader.*

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Roses in Mississippi.—My Noisette *Lamarque* roses have now single stems or trunks of one inch and a half diameter, supported by stakes, at from 6 to 12 feet from the ground. I suffer them to throw off branches which are now covered with large *snow-ball-like* clusters—sometimes 30 or 40 roses in a cluster. The *Chromatella*, (or Cloth of Gold.) I train in the same way. On a *Gloire de France*, I counted to-day, 40 perfectly formed buds and roses in one cluster—such a crown as Flora herself might have been proud of. Yours, *A. H. Peck, M. D. Port Gibson, Miss. Oct.* 7, 1848.

Orchidaceous Plants.—*Sir:* As plant culture is now engaging the attention of horticulturists so much in this country, as well as in Europe, that we scarcely meet a number of our horticultural periodicals without a lengthened article on some favorite family or tribe, may I be permitted to call the attention of your readers to the fanciful and admirable, (but in this country, much neglected,) order *Orchidacaea*, an order with which, for beauty, curiosity, and fragrance, not one in the vegetable kingdom can vie. The majority of its species present the most pleasing variety of any vegetable production; the great variety of their colors, the delicacy and elegance of their forms, the duration of their flowering season, and the singularity of their appearance, would, I think, be sufficient recommendation to inspire the most careless observer with a zeal for their cultivation. Besides, the simplicity of their treatment, no longer requiring from us any of those various carefully mixed soils necessary for other plants, but a block of wood, and a *high damp* atmosphere, such as they breathe in their native habitats, would be a farther inducement for introducing them in our gardens. There is no country in which they so abound as the Mexican and Brazilian forests, which are now quite accessible to us, and yet, strange to say, they are almost unknown to American plant cultivators, except by name, whilst they often crowd their stoves with many worthless European species, and leave these charming children of nature unobserved to diffuse their fragrance to the balmy breezes of their native forests.

Their culture is as simple as their forms are unbounded. They require little more than a suitable house, where a high temperature can be maintained, and like many pet-plants, a peculiar treatment. In this country, under a bright sun, they would be more easily cultivated than in Britain, where they are an object of considerable emulation among amateurs, but not to the extent they deserve. What, indeed, can be compared for beauty to those superb *Laelias* and *Cattleyas*, what so admirable as those elegant *Stanhopeas*, what so graceful as those *Odontoglossums* and *Oncidiums* that adorn the collossal trees of the Mexican and Brazilian forests, or the beautiful *Sobralias*, with their elegant grass-like foliage, and rich crimson flowers. These are strictly air-plants. Their terrestrial associates are no way inferior to their epiphytal neighbors. What Indian productions so magnificent as those unrivalled *Vandas* and *Aerides*; what so delicate and beautiful as those *Dendrobiums*, and that gem of the Manilla forests, the Indian Moth-plant, *Phalaenopsis amabilis*, with its flowers of the purest white, and extremely singular lips; nor do I hesitate to say that if the readers of the Horticulturist had a knowledge of their peculiarities, they would, with me, consider them the most exquisitely curious and beautiful of nature's productions. Rich in every shade or variety of color,

airy and fantastic in their habits, but always elegant, replete with the richest aromatic perfumes, or emitting the most refreshing and delicate odors, portraying in the most extraordinary formations of their flowers the miniatures of almost all animated nature—beasts, birds, fishes, insects, and reptiles—nor can even the human species escape their carricatures. Indeed, they combine all the qualities that amateurs seek after, beauty, fragrance, and durability; some retaining their blossoms in perfection eight or ten weeks under proper treatment; and it is among them that we find what was deemed worthy of fitting the foot of the goddess,—the real "Ladies' Slipper."

There is no tribe so interesting to the naturalist as the tiny, fairy-like flowers of the Orchids. Dr. LINDLEY says, *Sertum Orchidacaea*, that the resemblance to insects and other animal forms which have been perceived in the orchidaceous plants of Europe, and which have given rise to such names as fly-orchis, spider orchis, &c., &c., may be traced so plainly in the genus *Oberonia* in every species, that it alone would furnish a magazine of new ideas for the grotesque pencil of a German admirer of the wild and preternatural. He also oberves that in the genera *Oberonia* and *Drymosa*, PYTHAGORAS would have found a living evidence of animals transmitted into plants. The genus *Pleurothallus* is also remarkable as possessing the smallest Orchidaceous plant known. This diminutive plant, *Pleurothallus muscoidea* has no stem. The leaves are two and one-half lines long, its peduncle is as fine as a hair, and about four lines long. The majority of the order inhabit the branches of trees, having nothing more to support their wants than the refreshing dews, warm showers, and pleasant breezes of their native wilderness, and when submitted to artificial treatment in our houses, they grow equally well on bits of wood, branches of trees, &c., whether in a living or decaying state; or on any material they do not actually dislike.

The following geographical distribution of the order, as given in Dr. Lindley's Vegetable Kingdom, might be interesting to novices in botany:

They are found in all parts of the world except upon the verge of the frozen zone, and in climates remarkable for dryness, in Europe, Asia, and North America, they are seen growing everywhere, in groves, in marshes, and in meadows. In the drier parts of Africa they are rare or unknown. At the Cape of Good Hope they abound in similar situations as in Europe; but in the hot, damp parts of the West and East Indies, in Madagascar and the neighboring islands, in the damp and humid forests of Brazil, in the warm, mild parts of Central America and Western Mexico, in the damp, tropical parts of India, and on the lower mountains of Nepal, the Orchidaceous plants flourish in the greatest variety and profusion, no longer seeking their nutriment from the soil, but clinging to the trunks and limbs of trees, to stones and bare rocks where they vegetate, among ferns and other shade-loving plants, in countless thousands; and when transmitted to our houses, they require from us an atmosphere similar to what they enjoy in their native haunts, which can only be obtained by *shade*, *heat*, and *moisture*, carefully administered.

Having already exceeded my limits, I will only add, that, if it be acceptable to your readers, I will prepare a list of American Orchidacaea, with all the particulars with which we are acquainted, as an inducement to the cultivation of those most delicious, most curious and beautiful of all known plants. I am, sir, respectfully yours, *M. C.*

[We shall be glad to receive further remarks on the culture of orchidaceous plants. The writer of the above, who is known to us as a gardener of remarkable skill in exotic plants, having recently arrived in the country, expresses to us his surprise that amid the great attention paid to many kinds of gardening here, and even to many kinds of green-house and stove plants, the curious and beautiful air-plants which are the *ultimatum* of exotic culture abroad, are so little known or cultivated.—ED.] ....

GREEN-HOUSES—EVERGREENS.—*Dear Sir:* I hope it is your intention to continue the subject of cheap green-houses, and oblige your readers with some estimates of the cost of buildings, stock and and tools, adapted to the scale described in your last number of the Horticulturist.

I observe one of your correspondents recommend pruning evergreens, transplanted. I am about planting a good many, and should be glad to know if this is your opinion, and applicable to our pines and hemlocks, and what is the method, to cast out branches, or shorten-in, as in deciduous trees. Your obt. servt. *W. Lenox, Mass.*

[If you *cannot* get good roots to evergreens, then shorten-in the branches to restore the balance. Always cut the branches in within an inch of the place on the larger branch where it forked out—and apply the *shellac solution* at once.—ED.]

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SUPERIOR GRAFTING WAX.—The following mixture, viz:

1 pint linseed oil;
6 pounds rosin,
1 pound bees-wax,

makes a better and cheaper wax, than any I have used made from rosin, tallow and beeswax. The oil will admit of a much greater proportion of rosin than the tallow. This wax will give entire satisfaction to whoever shall use it. *T. G. Yeomans. Walworth, N. Y., Nov.* 1848.

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FIRST RATE FRUITS.—The Jefferson Plum, was produced first here this season, and is of very high merit. The Brevoort Peach, obtained from Newburgh at the same time, is the finest flavored freestone we have had in this latitude for many years; so pronounced by many good judges. Yours, very respectfully, *W. C. Wilson. Baltimore, Oct.* 1848.

VINEYARD CULTURE IN INDIANA.—We extract the following account of the grape culture in Indiana, from the new edition of Mr. ALLEN's work on the vine. It is the account of Mr. GOODWIN's experience.—ED.

I have about eight acres in cultivation. The vines are planted in rows, about six feet apart, and at the distance of four feet in the rows. My system of pruning consists simply in shortening-in the wood of the past year's growth from one to a dozen eyes, according to the condition of the vine, and afterwards tying up the new growth to the trellis, from time to time, as it may seem to require support. Stout stakes, about 5¼ feet high, with narrow strips of board nailed on them, constitute the best trellis. I tried wire, but the sun heated it to such an extent that it killed the tendrils of the vine, and frequently injured the young wood.

My grapes are principally Catawba; I have a few of the Isabella, but do not use them for wine. The Catawba, as a wine grape, has, in my opinion; no equal among grapes that can be successfully cultivated in our climate.

We have occasionally had the leaves of our vines eaten in places by an insect, but never to an extent sufficient to be injurious. The "rot" is the great enemy we have to contend with. Some seasons twenty gallons of wine per acre can hardly be realized from our vineyards in consequence of it. I have noticed that whenever wheat is injured by the rust, the grape is, to a proportionate extent, affected by the rot. They doubtless originate from a common cause. As to what that cause is, great diversity of opinion exists. My observation does not enable me to give, with confidence, any opinion on the subject.

The young shoots, in spring, are seldom injured by frosts, except in low grounds. This fact is now beginning to be understood by our farmers, and the highest ground is selected for both vineyards and orchards.

I have never tried any of the foreign varieties; Mr. LONGWORTH's experience having satisfied me that it would be but a waste of time and money.

There are a considerable number of vineyards in our county—I cannot of course speak with entire accuracy—but I think I cannot be far wrong in estimating the quantity of land devoted at present to the culture of the grape in this county, at from 100 to 120 acres. In this estimate I do not mean to include small portions, grown merely for family use, but vineyards intended for the manufacture of wine. The quantity will probably be doubled in the course of two years more. The vineyards on the hills seem to do much better than those immediately on the river. In the rich alluvial bottoms they do not succeed well, the fruit almost invariably rotting.

With regard to the *profit*, a careful cultivator may safely calculate on 200 gallons of wine per acre, one year with another; he may with as much certainty calculate on selling the juice at the press, at from 60 to 80 cents per gallon—making the proceeds per acre from 120 to 160 dollars. The same labor that will cultivate twenty acres of corn, will suffice for ten acres of grapes. The twenty acres of corn, when gathered, may at the best prices and crops, be worth here $250; the ten acres of grapes from $1200 to $1600 dollars. This, however, cannot be expected to last long; as vineyards increase, and they are doing so rapidly, the price of wine must come down; it can be manufactured and sold at 75 cts. per bottle, and then pay the producer better than any other crop he can raise.

The *Champagne* manufactured from the juice of the Catawba, is equal, in my judgment, to the best European brands. I do not manufacture [ferment] my own wine, but sell the juice to the vintners. *Amos Goodwin. Clarkstown, Indiana,*

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GRAFTING VINES.—Permit me to describe a method of grafting the grape upon roots that I have never seen in print.

Cut the old root off, some two inches below the ground, by a horizontal cut. Then choose a gimblet just the size of the scion to be inserted, and bore from one to three or four holes, according to the size of the root, and insert the scions, first removing the loose bark. The holes should be two or three inches in depth, and the scion should fit accurately. I have never known them fail to grow. Old stocks may thus be wholly changed in two years. If the operation is performed so late in the season that the root shows a disposition to bleed, grafting cement must be used. The holes should be [perpendicular,] or in the direction of the grain of the wood. I have never known this method fail, and I have never succeeded with any other, though I have frequently tried both cleft and split grafting. *Amos Goodwin. Ibid.*

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THE DIGNITY OF LABOR IN AMERICA.—In mechanical labor and skill, the absence of all *honour* as an habitual attendant, is, in Europe, equally manifest. I know that luxury purchases, often at a great price, the beautiful results of handicraft and skill. I know that individuals of boldness and energy—those irrepressible spirits whose elasticiy no bonds can limit—have occasionally forced their way through all this downward pressure, and have compelled an acknowledgement of their greatness, and a respect for their mighty developments of mental and moral powers, from those titled tribes, who habitually fancy their interest to be in widening the gulf of separation, and insulating their own position as completely as possible. But what are these among so many? Their class are tradesmen and tradespeople still. And the habitual fact in their history is, not only no encouragement to rise, but great discouragement and jealousy of their possible ability to break the shell of *caste*, whose accumulated scales ages have riveted over them. European mechanics feel this fact of discouragement and dishonor, and feel it deeply.

I stood the other day by the bench of an English mechanic, whose remarkable skill I was admiring, and the genius of whose youthful son in his work I was noticing, when the father took from the drawer some beautiful crayon and pencil sketches which this working boy had made. "Ah! sir," said the father, "this is America. My boy was taught all this for nothing, at your public school. Had I stayed at home, he would have lived and died unnoticed at the bench. Here he may take a stand and be honored and encouraged." Yes, and this is but one of the multitude of instances of illustrations, which a knowledge of facts would bring out, of the encouragement which American freedom gives to innate talent.

I know a poor English carpenter, who with the utmost difficulty gathered the needful bread for his family. His children were placed in the public schools of a neighboring city. His eldest son, having no chance of education before, laid hold of his opportunity greedily, passed with honor through all the stages of public education, at the public expense; and on his graduating at the summit of the career of the city's provision, was immediately appointed a teacher, and is now a professor of ancient languages in one of the highest institutions—and honored the more for the industry which has made him, from neglected poverty, what he is. This is America. That boy might have lived and died a beggar in the streets of London, and no titled man have taken him by the hand, to bring out, in an elevating education, the noble powers his Creator had implanted within him.—*Dr. Tyng's Address before the American Institute.*

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ANSWERS TO CORRESPONDENTS.

STRAWBERRIES.—*P. W. E.*, (Charleston.) If you will consult vol. 2d, p. 133, you will find excellent practical details for the culture of this fruit. Also, at p. 114, of the present volume, are some highly interesting remarks, (by B., of Poughkeepsie,) on the field culture of strawberries. One hundred bushels to the acre are frequently grown here by the market gardeners. The English *White Wood* strawberry is the only white one cultivated here; it is an excellent sort for family use, bears moderate but regular crops, and continues coming in for a long time. Culture very easy. The Hudson is the most profitable market strawberry, in all soils.

FORCING FRUITS.—*D. L.*, (Roxbury, Mass.) Fifteen-inch pots are usually preferred to boxes for forcing fruit trees. We think the fig would do better in boxes of a larger size. Peaches, nectarines, and other hardy fruit trees, forced in pots, ought to be taken out of the house as soon as the crop is gathered, placed in a partially shaded situation, and the pots plunged in old tan, sawdust, or the like, to keep them cool and moist. Here they should be suffered to be till the forcing season commences, unless the frost should sit in very severe, when they should be carried into a cool airy shed till the forcing season.

Vine borders, that are wholly *inside*, should be well soaked with water in the autumn at the fall of the leaf. They will then not need any more till towards the time of growth, unless they get dry, which should not be allowed.

OSAGE ORANGE HEDGES.—*D. Redmond*, (Utica, Y.) You will find some remarks on this plant, in another column. We do not think it will prove hardy in Utica. Plants may be had of A. SAUL & Co., of this place—and as all trees resist the winter better when clipped annually, as a hedge must be, it is worth your while to plant a small quantity for trial. It grows three times as fast as the Hawthorn, and faster for the first two years, than the Buckthorn.

ARAUCARIA.—*A Lover of Evergreens*, (Pittsburgh, Pa.) Araucaria imbricata appears to be quite hardy about New York. Dr. VALK, of Flushing, in a note before us, says, "my *Araucaria imbricata* has been in the open ground four years. Though yet a little tree it does not appear to mind "Jack Frost" at all, and has grown finely the past summer."

BOOKS.—*A New York Subscriber.* A new edition of *Michaux's Forest trees*, edited by NUTTALL, has just been put to press in Philadelphia: The original Michaux, with 156 *colored* plates, 3 vols. for $23, and Nuttall's continuation, 3 vols., 124 colored plates, for $26. We shall give a list with prices of the other works, in our next number.

STOCKS.—*J. Fulton, jr.*, (Chester co., Pa.) The "horse plum" is not a damson, but a common blue freestone variety, allied to the Orleans, which reproduces itself freely from seed. It takes the bud readily, which the damson does not. The seeds can be had in abundance in New York, or on the Hudson, in the autumn, but we imagine not now. Plum stocks are advertised in quantities, by Mr. GUSTIN, of Morristown, N. J.

MANURES.—*D. L.*, (Roxbury.) We have not found anthracite ashes of the slighest possible benefit when applied to kitchen garden crops—but some fruit trees, as the cherry and grape, are decidedly improved in growth and health by their application.

An Original Subscriber, (New Haven.) Place your heap of charcoal dust behind or near the privy, and have the "chamber lye" poured upon it daily. It will take up all the ammonia and other salts, and be ten times more valuable as a manure, than before.

GREEN-HOUSES.—*An Amateur*, (Buffalo.) The cost of such a green-house as you propose, well built, here, with a brick wall and a furnace and flues, would be about $8 per running foot, (i. e. for one 30 feet long, $240.) With you, where lumber is cheaper, if, for the wall, you substitute cedar posts, lined on both sides with plank, and the space filled in with dry tan or charcoal dust, and instead of the flue, a polmaise stove, as described in our last month's leader, it would probably cost about half this sum.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting of this Society, was held on the 19th of December, 1848. The display was good, for the season of the year.

The President in the chair.—Premiums were awarded on the occasion

By the Committee on Plants and Flowers.—For the best hot-house plants, and for the best design of cut flowers, to James Bisset, gardener to James Dundas; for the second best hot-house plants, for the best green-house plants, for the best collection of plants in pots, for the second best design of cut flowers, and for the best basket of cut flowers, to Ben Daniels, gardener to Caleb Cope; for the second best collection of plants, in pots, to Jno. G. Smith; for the second best basket of cut flowers, to Maurice Finn, gardener to John Lambert. Special premiums of one dollar, each, were awarded to James Bisset, Robert Kilvington, P. Burk, and B. Daniels, for bouquets.

By the Committee on Fruits.—Special premiums, one of two dollars, to Thomas Hancock, for St. Germain Pears; and one of a dollar each, to James Clark, for Seckel Pears, from the fruit preserver; and to Wm. Perry, for Newark King apples. And the committee award the following premiums for American Seedling fruit, exhibited during the present year, viz: for the Ott Pear, ten dollars, to Samuel Ott, Montgomery county; and for the Jefferies Apple, five dollars, to Isaac Jefferies, Chester county.

By the Committee on Vegetables.—For the best and second best display of vegetables, to Ben Daniels, gardener to Caleb Cope, and for the second best display, to Wm Johns. And a special premium of one dollar to Anthony Felten, for five Cauliflowers.

The Committee on New Plants, Flowers, etc., reported, that John Sherwood exhibited at the stated meeting, in April, a specimen of the *Spiræa Reevesiana*, which he represented as new, and which he had imported from France, last autumn, whence it had been introduced from Japan. The Committee awarded a premium of three dollars to John Sherwood, for its introduction

On motion, ordered that three hundred dollars be appropriated for the increase of the Library.

The Library Committee submitted their annual report, by which it appears that sixty volumes have been added during the year, and that the library contains eight hundred volumes.

The Committee for establishing premiums, reported a schedule of premiums, for the ensuing year, which was adopted.

Two amendments were proposed to the By-laws, for consideration.

Members elected.—Prof. J. Rhodes, Deacon C. Hough, Maurice Finn, and John McIntosh.

Objects shown.—By Robert Buist, a very fine collection of plants, not in competition. Among them were the following, recently introduced: Gerranium Brighton Hero, Abutilon venosum, Acacia nitida, and Hibiscus from California.

By Ben Daniels, gardener to Caleb Cope—A beautiful collection of plants; a number of species rarely seen at the meetings, of which was a fine specimen of Littœa geminiflora, with a stem about twelve feet in height, one half of its length covered with a spike twin flowers; Phaius maculata, and several species of Rhipsalis—also a number of bouquets, and a fine collection of vegetables.

By James Bisset, gardener to Jas. Dundas, several fine plants and bouquets.

By J. G. Smith,—A collection of plants.

By Alex. Parker—A table of Chrysanthema.

Fruit.—By Tho. Hancock, St Germain and Walnut Pears—by James Clark, Seckel pears, from the fruit preserver, in fine flavor—by Wm. Parry, five varieties of apples, of new kinds—by Samuel C. Ford, the Olney apple

Vegetables.—By Anthony Felten, a very large collection—by Wm. Johns, radishes from the open garden, and tomatoes just cut from the vines. THO. P. JAMES, Rec. Sec'y.

MASSACHUSETTS HORTICULTURAL SOCIETY.

BUSINESS MEETINGS.

Nov. 16.—President WILDER in the chair. On motion, it was *Voted*, That a Committee be chosen, to consider and report to the Society, upon the expediency of the adoption by this Society, of some measures to obtain and disseminate information as to the best modes of cultivating fruits.

Voted, That this committee consist of nine persons, to be chosen by the chair, the President of the Society to constitute one, of its members; and the following gentlemen were appointed said Committee: Joseph S. Cabot, Chairman; M. P. Wilder, E. M. Richards, Otis Johnson, B. V. French, Samuel Walker, David Haggerston, C. M. Hovey, and Jos. Breck.

Dec. 2.—President, MARSHALL P. WILDER, in the Chair. The Executive Committee submitted the following Report.

The Executive Committee, in accordance with the duty enjoined on them by the By-Laws, recommend that the sum of *Twelve hundred and fifty dollars*, be offered by this Society in Premiums for 1849—that the income of the Appleton, Lowell, Lyman and Bradlee funds, constitute a part of this appropriation, and that the apportionment to the several committees be the same as for the present year.

The Committee would state that the fund for "Special Prizes on Fruits," has been expended, and in consequence of this, the sum now suggested, is less by *One hundred dollars*, than the amount granted for the year 1848. They therefore recommend, in addition to the above, that 10 setts of Coleman's Agricultural Tour, and the Medals remaining on hand, (after the distribution of those already awarded,) be given as *Premiums* or as Gratuities, for such objects as are worthy of distinction, and not provided for in the Prize List.

MARSHALL P. WILDER, Ch'n.

Dec. 16.—President, Marshall P. Wilder, in the chair. Letters were received from Monsieur TOUGARD, President of La Societie Centrale de Horticulture, Rouen, France, accompanied with a Catalogue of his Nursery, and the Publications of the Society, over which he presides, whereupon it was voted, that the thanks of this Society, with its Transactions, be transmitted to M. Tougard, by the Corresponding Secretary.

A letter was also received from F. R. ELLIOTT, Esq., o Cleaveland, Ohio, presenting a bundle of Native Cherry Trees, in 7 sorts, and the thanks of the Society were voted to Mr. Elliott, and the trees placed in the hands of the President for the Society's use.

Mr. SAM'L WALKER, presented, in behalf of the American Institute, of New York, Reports of their 21st Annual Fair and Exhibition, and it was voted—that the thanks of this Society be presented to the American Institute, and the Reports placed on the table for distribution among our members.

E. C. R. WALKER, Rec. Sec'y.

WEEKLY EXHIBITIONS.

Saturday Dec. 3, 1848.

FRUITS—From the President of the Society, excellent specimens of Buerre d'Aremberg, Glout Morceau, Buerre Diel, Inconnue Van Mons, and Easter Buerre Pears

From John Gordon, very splendid specimens of Easter Beurre Pears.

From Samuel Walker, Vicar of Winkfield, Buerre Rance, Passe Colmar, Caen de France Pears Rhode Island Greening, Baldwin, and White Seek no-further Apples.

From A. Dexter, Baldwin, R. I. Greening, Roxbury Russett, and Lady Apples.

From B. V. French, White Seek-no-further, and Conway Apples.

From Otis Johnson, Roxburry Russett, and Easter Buerre Pears.

From John Owen, Newton Pippin and Apples.

P. B. HOVEY, JR.

FRUITS TESTED.—S. Walker: Baldwin, White Seek-no-further, fine, Buerre Rance, Caen de France.

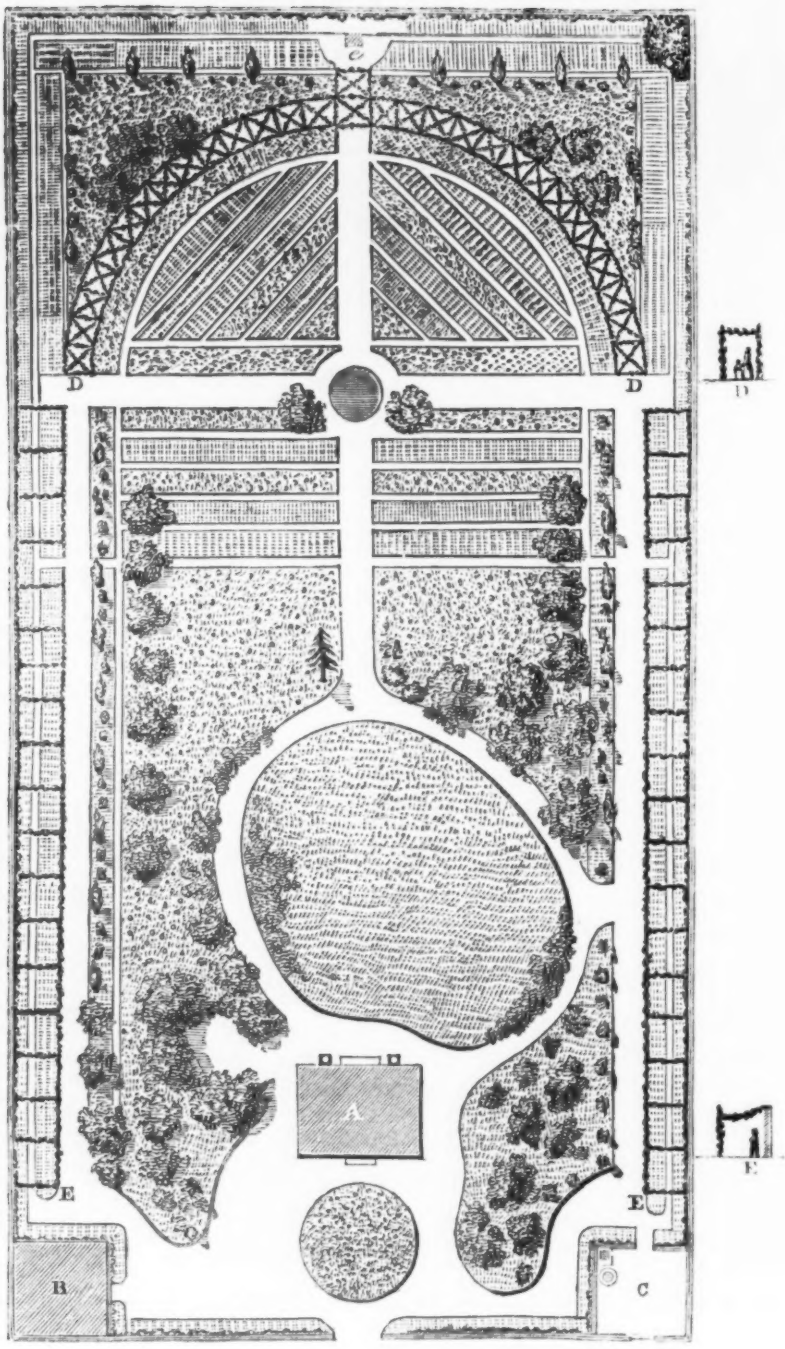
B. V. French—White Seek-no-further, fine, Conway.

John Gordon—Eastern Buerre, fine.

Otis Johnson—Eastern Buerre, fine.

M. P. Wilder—Easter Buerre, fine, Buerre Diel, Glout Morceau, fine, Inconnue Van Mons, fine flavor and a promising fruit, Buerre d'Aremburg.

Hovey & Co.—Monarch, Glout Morceau.



PLAN OF A SUBURBAN GARDEN.

[Hort. Feb. 1849.]